Invitation for Public Comment on the List of Candidates for the EPA Science Advisory Board Panel for the Review of EPA's Water Body Connectivity Report

May 17, 2013

The U.S. Environmental Protection Agency (EPA) Science Advisory Board (SAB) Staff Office announced in a Federal Register Notice (Volume 78, Number 46, Pages 15012 – 15013) published on March 8, 2013 that it was seeking public nominations of technical experts to serve on an expert Panel under the auspices of the SAB to review the EPA's draft science synthesis report on the connectivity of streams and wetlands to downstream waters. The SAB Staff Office sought public nominations of recognized experts in one or more of the following disciplines: (a) hydrologists, geologists, and fluvial geomorphologists with expertise in the hydrology and formation of large rivers, small streams, wetlands, surface-groundwater interactions, sediment transport, or hydrologic connectivity of waters; (b) ecologists with expertise in stream ecology or wetland ecology, particularly with respect to freshwater stream-wetland connectivity, or wetland ecosystem function; (c) biologists with expertise in population dynamics and dispersal of freshwater organisms, fisheries, aquatic entomology, amphibian biology, or the biologic connectivity of freshwater systems; and (d) water chemists and biogeochemists with expertise in nutrient dynamics or pollutant fate and transport in watersheds.

The SAB Staff Office Director will make the final decision about who will serve on the Panel based on all relevant information. This information includes a review of the confidential disclosure form (EPA Form 3110-48), information independently gathered by staff, and public comments. For the EPA SAB Staff Office, a balanced Panel is characterized by inclusion of candidates who possess the necessary domains of knowledge, the relevant scientific perspectives (which, among other factors, can be influenced by work history and affiliation), and the collective breadth of experience to adequately address the general charge. Specific criteria to be used in evaluating a candidate include: (a) scientific and/or technical expertise, knowledge, and experience; (b) availability and willingness to serve; (c) absence of financial conflicts of interest; (d) absence of appearance of a lack of impartiality; (e) skills working in committees, subcommittees, and advisory panels; and, for the Panel as a whole, (f) diversity of scientific expertise and viewpoints.

The SAB Staff Office has identified the following list of candidates for this Panel based on their relevant expertise and willingness to serve. We hereby invite public comments on the attached List of Candidates that the SAB Staff Office should consider in the formation of this Panel. Comments should be submitted to the attention of Dr. Thomas Armitage, Designated Federal Officer, no later than June 7, 2013. E-mailing comments (armitage.thomas@epa.gov) is the preferred mode of receipt. Please be advised that comments received are subject to release under the Freedom of Information Act.

Candidates for the SAB Panel for the Review of EPA's Water Body Connectivity Report

Abrams, Ronald

Dru Associates Inc

Dr. Ronald W. Abrams is the Principal Ecologist at Dru Associates, Inc. and Assistant Adjunct Professor of Earth and Environmental Science at Long Island University. He also serves on the Board of Governors of the Society for Conservation Biology (SBC) as Chair of the Ecological Footprint Committee. Dr. Abrams holds a B.A. in History/Politics from Washington and Lee University, an M.S. in Biology from West Virginia University and a Ph.D. in Ecology from the University of Cape Town, where he served as Senior Research Officer in the Percy FitzPatrick Institute for African Ornithology, where he performed research and administered the program for the seabirds of the Southern Ocean. Dr. Abrams' current research is in ecological restoration, with 27 years of experience constructing and monitoring wetlands and other sensitive habitats for biodiversity conservation. Since 2004, Dr. Abrams has served on the Board of the Africa Section of SCB in a fundraising and mentoring capacity, working with young conservation scientists throughout Africa through a grant from the MacArthur Foundation. Dr. Abrams is a member of the Advisory Council for the Center for Estuarine, Environmental and Coastal Oceans Monitoring at Dowling College. During the years 2009-2012, Dr. Abrams developed a monitoring model for coastal wetland management funded by Suffolk County, New York. In 2010 Dr. Abrams was listed for Ecological Restoration on the Senior Specialist Roster of the William D. Fulbright Scholars program, executing his first assignment to Rhodes University in South Africa working on succulent thicket restoration for carbon sequestration. In 2011, Dr. Abrams was awarded a grant from the Rufford Foundation to return to Africa to work on the carbon project. His next visit to Africa will be funded by the Fulbright program to continue work on the carbon sequestration program in collaboration with the South African's Department of Environmental Affairs.

Aldous, Allison

The Nature Conservancy

Dr. Allison Aldous is a freshwater scientist with The Nature Conservancy (TNC), addressing issues that include the conservation of groundwater-dependent biodiversity, wetland restoration, water quality, environmental flows restoration, and climate change impacts to freshwater biodiversity. She works extensively with partners in state and federal agencies, including the US Forest Service, the U.S. Geological Survey, and the Oregon Department of Water Resources. Dr. Aldous leads a major partnership between The Nature Conservancy and the U.S. Forest Service with the goal of improving the protection of groundwater-dependent resources on national forests across the U.S. Over the last four years, Dr. Aldous' work has been funded by the U.S. Forest Service, the Bella Vista Foundation, the Oregon Water Enhancement Board, the Wildlife Conservation Society, and Portland General Electric. Prior to her position with the Oregon chapter of the Conservancy, Dr. Aldous worked for the national office of TNC and led a wetland training program for Conservancy staff across the U.S. and in Central and South America, where she trained land and water managers in wetland ecology and conservation. Dr. Aldous holds a Ph.D. (2001) from Cornell University in Natural Resources (wetland ecology); an M.Sc. (1994) in plant sciences; and a B.Sc. (1989) in biochemistry, both from McGill University in Montréal, Canada. She has authored numerous journal articles and technical papers on the topics of groundwater-dependent biodiversity, wetland restoration, wetland responses to atmospheric nitrogen deposition, and adapting biodiversity conservation to the expected impacts of climate change.

Ali, Genevieve

University of Manitoba

Dr. Genevieve Ali is Assistant Professor in the Department of Geological Sciences at the University of Manitoba (Canada). Dr. Ali is also the Junior Chair of the Watershed Systems Research Program funded by the Government of Manitoba, and an Adjunct Professor with the Center for Earth Observation Science (Winnipeg, Manitoba). She received her Ph.D. from the University of Montreal in 2010 and worked as a post-doctoral research associate with the Northern Rivers Institute in Aberdeen, Scotland, United Kingdom. Her main areas of expertise are watershed hydrology and hydrological modeling, with a strong focus on hydrological connectivity. Her work has added to the recent body of studies that suggest the use of water storage thresholds, geochemical tracers and topographically-derived indices to approximate the timing of connectivity. She has notably built an inventory of approaches to assess connectivity, and co-authored three review papers on the establishment of a conceptual framework to formerly address the temporal and spatial influences on the phenomenon. One of her manuscripts on connectivity metrics was chosen as a featured article by the editors of *Water Resources Research* and publicized as an "AGU Research Spotlight' in the American Geophysical Union (AGU) weekly newspaper *Eos* in 2011. Dr. Ali's research is currently funded by Environment Canada, Manitoba Conservation and Water Stewardship, Manitoba Infrastructure and Transportation, the Clayton H. Riddell Endowment Fund, the University of Manitoba, and the Natural Sciences and Engineering Research Council of Canada (NSERC). Dr. Ali received an Outstanding Dissertation Commendation Award and the Dean's Prize from the University of Montreal in 2010-2011, as well as an Early Career Researcher Award from NSERC in 2013. She also received new funding for research on water, sediment, and nutrient connectivity in engineered Prairie landscapes (i.e., landscapes where natural flow paths have been significantly altered by surface drains, tile drains, storage ponds, farm dams, and wetland drainage towards floodplain development and agricultural expansion).

Allan, J. David

University of Michigan

Dr. David Allan is Professor in the School of Natural Resources and Environment at the University of Michigan where he has served as Associate Dean for Academic Affairs and Acting Dean. Dr. Allan's research and teaching focuses on the ecology of fresh waters, including their conservation, management, and restoration. He is the author of two widely-used text books: *Stream Ecology* (2007, with M.M Castillo) and *Streams: Their Ecology & Life* (2001, with C.E. Cushing). Dr. Allan's current research investigates the influence of changing land use on river ecosystems, the factors affecting success of stream restoration, and the ecology of freshwater communities. He currently leads a research team that is evaluating multiple threats to the Great Lakes. Dr. Allan received a Bachelor of Science degree in Zoology from the University of British Columbia in 1966, and Master of Science and Doctoral degrees in Zoology from the University of Michigan in 1967 and 1971, respectively. He was a Post-Doctoral Fellow in the Department of Biology at the University of Chicago before joining the Department of Zoology at the University of Maryland, College Park, where from 1972 to 1990, he served as Professor and Director of Graduate Studies. In 1990, Dr. Allan joined the School of Natural Resources and Environment, where he was appointed Associate Dean for Academic Affairs in 2007 and Acting Dean in 2008. In 2010 he returned to the role of Professor. Recent funding for Dr. Allan's research includes National Oceanic and Atmospheric Administration support for nonpoint runoff modeling and private foundation support for a spatial analysis of multiple stressors in the Great Lakes.

Anderson, Christopher

Auburn University

Dr. Christopher Anderson is an Assistant Professor for the School of Forestry and Wildlife Sciences (SFWS) at Auburn University. He is also Associate Director of the Auburn University Center for Forest Sustainability. Dr. Anderson received his Ph.D. in Natural Resources (Wetland Ecology) from The Ohio State University, his M.S. in Botany from the University of South Florida, and his B.S. in Forestry and Wildlife from Virginia Tech. Dr. Anderson also held post-doctoral positions at Ohio State and Auburn University prior to his current faculty appointment. His current research is focused on land use and its implications for wetland function. Much of his research has focused on forested headwater wetlands and streams in south Alabama. He has received multiple grants to evaluate the effect of land use change on wetland hydrology, wetland water retention, carbon dynamics, and amphibian habitat. Dr. Anderson is the project Principal Investigator (PI) on a grant from the Mississippi-Alabama Sea Grant Consortium (NOAA-Sea Grant) to examine the role of headwater wetlands for maintaining downstream water quality in urban areas of coastal Alabama. This information is being used to improve watershed drainage models for broader watershed modeling and planning. Other headwater research has examined the role of land use on watershed drainage, riparian connectivity, water quality, and stream invertebrate assemblages. Dr. Anderson has been funded as a Co-PI on two successive U.S. EPA grants to examine the role of stream geomorphology on the composition of riparian forests (along with other conditions) in low-order streams in the Piedmont and Cumberland Plateau regions of Alabama. In all cases, his research has emphasized the functional role of wetlands and their hydrologic connectivity to watersheds and downstream waters. Dr. Anderson currently serves as a member of the American Society of Civil Engineers-AWRI Wetland Hydrology Technical Committee. In addition to his research program, his teaching responsibilities include Wetland Ecology Management, Watershed Services, and an upcoming Watershed Ecology course. Dr. Anderson has 20 years of professional experience as a consultant ecologist on matters pertaining to formal and informal wetland assessments, Clean Water Act Section 404 Individual and Nationwide Permits, wetland delineations (using both state and U.S. Army Corps of Engineers methodologies) and wetland mitigation.

Arscott, David

Stroud Water Research Center

Dr. David B. Arscott has held the Assistant Director position at Stroud Water Research Center (SWRC, Avondale, PA) since 2009 and is a Research Scientist with expertise in stream ecology, riparian and wetland ecology, hydrology, and water chemistry. Dr. Arscott received his Ph.D. in Natural Sciences from the Swiss Federal Institute of Environmental Science and Technology (Zurich, Switzerland) in 2001, his M.S. in Water Resources Management from University of New Hampshire in 1997, and his B.S. in Biology (minors in Chemistry and Conservation) from Central Michigan University in 1994. Dr. Arscott has significant experience in the domain of linking wetlands with downstream waters. He was an expert science witness and co-author of a wetland assessment submitted by SWRC for a civil action law suit that was heard by the U.S. Third Circuit Court (District of Delaware; filed on 23 August, 2010) and he is actively engaged as an Expert Science Witness for ongoing litigation by the Environmental Defense Division at the U.S. Department of Justice. Dr. Arscott's research activities have included studying the aquatic ecology and hydrology of temporary streams and associated pond/wetland systems along drying river corridors in New Zealand; the general hydrology, chemistry, and invertebrate biology along a braided floodplain river system with pond/wetland floodplain complexes in Italy; the ecology of Antarctic ponds; algal and bryophyte communities in Arctic streams; water quality in the New York City drinking water supply watersheds; and water quality and fish communities in Mangrove Swamps in Costa Rica. Dr. Arscott has been lead author on more than 10 peer reviewed manuscripts on stream ecology and is co-author on more than 20 other peer reviewed manuscripts. He has taught Wetland Ecology and Management at the University of Minnesota (Crookston Campus) and Introduction to Freshwater Ecology at the University of Pennsylvania. He also is an active member of the Society for Freshwater Science and is an Associate Editor for Freshwater Science. Dr. Arscott's recent sources of research funding include National Science Foundation, National Fish and Wildlife Foundation, Blue Moon Fund, U.S. Department of Justice, University of Pennsylvania, and Stroud Water Research Center Endowment.

Badiou, Pascal

Ducks Unlimited Canada

Dr. Pascal Badiou is a research scientist with Ducks Unlimited Canada's (DUC) Institute for Wetland and Waterfowl Research (IWWR). Dr. Badiou joined IWWR in May 2006. Prior to joining DUC, Dr. Badiou worked as an aquatic scientist specializing in water quality and aquatic ecology for an environmental consulting firm in Winnipeg. Dr. Badiou's research interests focus on the ecology of wetlands and shallow lakes. He is particularly interested in how multiple stressors such as droughts, eutrophication, nonindigenous species and pesticides interact to affect the ability of wetlands to enhance water quality and regulate greenhouse gas emissions. Currently Dr. Badiou is working to develop the Broughton's Creek watershed in south-western Manitoba as a model/experimental watershed in order to determine the impacts of wetland management practices (drainage and restoration) on hydrology and water quality at large scales. Dr. Badiou has a B.Sc. in Environmental Science and a Ph.D. in Wetland Ecology from the University of Manitoba. He is an adjunct professor in the University of Manitoba's department of Soil Science. Dr. Badiou also served as the program coordinator for Ducks Unlimited Canada's Agriculture and Wetlands Greenhouse Gas Initiative. Dr. Badiou is currently an invited member of the International Boreal Conservation Science Panel, was a member of the Manitoba/Israel Water Experts Panel in 2008 and 2010, and was an invited expert at the Ramsar Convention Secretariat, Expert meeting on Biodiversity, water, wetlands and climate change, held March 23 -24, 2007 in Gland, Switzerland. Dr. Badiou's research in recent years has been funded by Environment Canada's Lake Winnipeg Basin Stewardship Fund, Manitoba Rural Adaptation Council, the Manitoba Water Stewardship Fund, and the RBC Blue Water Fund.

Baker, Michelle

Utah State University

Dr. Michelle Baker is a Professor and Associate Head of Biology, and an Associate of the Ecology Center at Utah State University. She holds a B.S. in Biology from Lafayette College and Ph.D. in Biology from the University of New Mexico. Dr. Baker spent a year in Toulouse France on a postdoctoral fellowship funded by the National Science Foundation – North Atlantic Treaty Organization (NSF-NATO) before joining the faculty at Utah State University in 1999. Dr. Baker is an ecosystem ecologist, whose research program focuses on hydrological and biogeochemical processes that control material transport and retention in streams and rivers, including the effects of land use on these processes. Current studies investigate biological and hydrological factors that affect nutrient transport in rivers, how stream network configuration and human activity affects nitrogen and organic matter cycling, and how ecological tools can assist with development of nutrient criteria for streams. Dr. Baker has served on state and regional advisory groups including the Jordan River Technical Advisory Committee for the state of Utah's Department of Environmental Quality, and the Aquatic Ecosystems Workshop Group for the Assessment of Climate Change Effects on Aquatic Ecosystems of the Great Basin-Rocky Mountain Region. She received the North American Benthological Society's Hynes Award for New Investigators in 2001. She serves on the Editorial Board of the journal *Freshwater Science* (formerly *Journal of the North American Benthological Society*), and is a past member of the Executive Committee for the North American Benthological Society. The National Science Foundation, the Utah Department of Environmental Quality, and the South Valley Water Reclamation Facility have funded Dr. Baker's research in the past two years.

Ballestero, Thomas

University of New Hampshire

Dr. Thomas Ballestero is an Associate Professor of Civil Engineering at the University of New Hampshire, where he teaches hydrology and water resources engineering. Dr. Ballestero holds B.S. and M.S. degrees in Civil Engineering from the Pennsylvania State University and a Ph.D. in Civil Engineering from Colorado State University. His teaching and research interests are broadly in the field of water resources computer simulation and field measurement of parameters. His current and past research projects include: stormwater management, stream restoration, surface water-groundwater interactions; instream flow; artificial recharge; movement, monitoring and biodegradation characteristics of organic contaminants in soils and ground water; innovative drilling and field techniques for characterization of contaminated sites and investigating environmentally sensitive locations; bedrock hydrogeology; and hydrofracturing. His early career in consulting focused on river system hydrology and sediment transport. From 1986 to 1999 Dr. Ballestero was the Director of the New Hampshire Water Resources Research Center. He is presently the Director of the University of New Hampshire Stormwater Center as well as the Stream and Wetlands Restoration Institute. Starting in May 2005 and on a sabbatical year, Dr. Ballestero spent 15 months with the U.S. Fish and Wildlife Service in Pennsylvania. This association continues today through an Intergovernmental Personnel Agreement. His efforts with the U.S. Fish and wildlife Service included: engineering designs, collection of stream geomorphic data, and construction supervision. Representative projects included: dam removal, fish bypass channel designs for small dams; wetland design and construction; channel construction; sediment transport monitoring and modeling; and river hydraulic simulation. Dr. Ballestero teaches upper level course at the University of New Hampshire on stream restoration, including stream crossing design, dam removal, and passage for aquatic organisms. He also teaches similar short courses at other universities and for national groups. Dr. Ballestero peer reviews articles submitted to at least six different technical journals and he also provides peer review of proposals and serves on expert review panels for the National Science Foundation, the U.S. Environmental Protection Agency, and the U.S. Department of Agriculture. He served for ten years on the Editorial Review Board for Ground Water Monitoring and Remediation, and six years as an Associate Editor for the Journal of the American Water Resources Association. He is also active with private consulting work on a large spectrum of water resources issues. Recent funding sources for his research include: U.S. EPA, National Oceanic and Atmospheric Administration, State of New Hampshire, U.S. Fish and Wildlife Service and the U.S. Army Corps of Engineers.

Barfield, Billy

Oklahoma State University

Dr. Billy Barfield is Emeritus Regents Professor at Oklahoma State University and an Emeritus Professor of the University of Kentucky. He is widely recognized for research related to quantifying hydrology, storm water, sediment transport, water control structures, water quality and climatology. His educational background includes B.S., M.S. and Ph.D. degrees in engineering from Texas A&M University as well as a professional certificate in meteorology. In addition to his engineering education, he has received national awards for his teaching and research that have resulted in hundreds of presentation and publications. Because of his expertise, he has developed several major widely used computer storm water quantity and quality models that predict the impact of land use, rainfall, and best management practices. In addition, he has taught numerous workshops to professional engineers, hydrologists, and water quality experts throughout the U.S. Dr. Barfield possesses an understanding of the physical, chemical and biological processes associated with surface and subsurface water that he has been able to combine with mathematical concepts to develop simulation models of water movement and water quality. As a consequence of his modeling efforts, he is very familiar with the literature describing stream, wetland and estuary processes. In addition, Dr. Barfield has served in administrative roles such as Director of the Kentucky Water Resources Research Institute, Director of the University of Kentucky University Wide Environmental Systems Graduate Program, Head of the Biosystems and Agricultural Engineering Department at Oklahoma State University, Co-Director of Oklahoma State University Manufacturing Extension Center, and Co-Director of the Oklahoma State University Center for New Product Development. Dr. Barfield has also been active on numerous committees and boards that are relevant including the Stillwater (Oklahoma) Drainage Appeals Board, Kentucky River Authority (Governor appointed authority responsible for managing quantity and quality of water in the Kentucky River Basin), Governor's Management Committee on Maxey Flats Nuclear Waste Site, and Kentucky Rivers Task Force. His administrative and advisory efforts have provided Dr. Barfield with an understanding of how to work with diverse groups on difficult subjects. Dr. Barfield partially retired from Oklahoma State University in 2004 and fully retired in 2007. After his partial retirement in 2004, he worked part time and later after full retirement full time for Woolpert, Inc, a national consulting firm in Dayton, Ohio. In that capacity, he was a Senior Engineer and Subject Matter Specialist for the company, specializing in water quantity and quality modeling.

Bartlett, R. Douglas

Clear Creek Associates

Mr. R. Douglas Bartlett, Registered Geologist, Certified Hydrogeologist, is a principal and co-founder of the groundwater consulting firm, Clear Creek Associates based in Arizona, California, and Virginia. Mr. Bartlett received his B.S. and M.S. degrees in geology from Colorado State University in 1977 and 1984, respectively. Mr. Bartlett has over 35 years of experience in the practice of environmental and groundwater science. During 22 years with the engineering consulting firm Dames & Moore, Mr. Bartlett worked on geologic and hydrogeologic projects throughout the United States and in several foreign countries. In 1999, Mr. Bartlett co-founded Clear Creek Associates. Since then, the firm has grown to about 40 staff and Mr. Bartlett is responsible for managing various groundwater projects throughout the desert Southwest U.S. His principal area of expertise is numerical modeling of groundwater systems for the purposes of evaluating long-term groundwater supply, water management through recharge, and the design of groundwater remediation systems. He has developed models that evaluate the migration of organic and inorganic chemicals in groundwater and has used models to assess the impact of groundwater changes on surface water bodies. Mr. Bartlett has also directed numerous field investigations involving the installation of multiple monitor wells (both single and multiple-completion designs), extensive aquifer testing, soil and groundwater quality testing, and geophysical studies (both surface and downhole). Mr. Bartlett has acted as an Expert Witness in several court cases involving groundwater model predictions. Mr. Bartlett is a Registered Geologist in the states of Arizona, Alaska, California, Oregon, Pennsylvania, and Washington and is a Certified Professional Geologist with the American Institute of Professional Geologists and a Certified Hydrogeologist in California. Mr. Bartlett is the President-Elect of the American Institute of Professional Geologists, Arizona Section and is co-chairman of the American Society of Civil Engineers Managed Aquifer Recharge (MAR) Guideline Development Subcommittee. Mr. Bartlett has not received any research funding in the past two years.

Benda, Lee

Earth Systems institute

Dr. Lee Benda is a Research Geomorphologist at Earth Systems Institute and a Geologist at Lee Benda and Associates, Inc. He earned an M.Sc. and Ph.D. from the University of Washington (Seattle) focusing on hillslope and fluvial geomorphology (Department of Geological Sciences). Dr. Benda's research has focused on the stochastic sediment supply characteristics of low-order, headwater streams, and their relationship to the sediment transport and storage dynamics of larger river systems. Other research interests and publications include the role of tributary confluences in structuring aquatic habitats at the scale of watersheds and the dynamics of wood recruitment in streams (wood budgeting). In 1997, Dr. Benda cofounded Earth Systems Institute, a not for profit organization, with the mission of expanding access to scientific information and tools to users outside of academia. Since 2007, he has been involved with the creation of NetMap, a community based system of tools and digital landscapes (www.netmaptools.org). The goal of NetMap is to provide consistent analytic stream layers and digital landscapes, coupled to analysis tools, across the western United States. Partnering organizations include U.S. Forest Service (USFS), Bureau of Land Management (BLM), U.S. Environmental Protection Agency (EPA), and conservation NGOs. Dr. Benda's funding sources since 2011 include: the U.S. EPA, U.S. Forest Service, Bureau of Land Management, The Nature Conservancy, Ecotrust, and the Wild Salmon Center.

Berg, Joeseph

Biohabitats, Inc.

Mr. Joseph Berg is currently the Ecological Restoration Practice Lead for Biohabitats, Inc., a small private consulting firm headquartered in Baltimore, Md. He is also currently serving as an officer for the mid-Atlantic Chapters of the Society of Wetland Scientists and the Ecological Society of America and is an editor for the American Water Resource Association's monthly magazine (*Impacts*). Mr. Berg is an ecosystems ecologist with more than 30 years experience in the assessment and analysis of natural resources; development, preparation, and implementation of restoration plans; and a wide range of required studies, documentation and permitting activities. His professional focus has included the restoration of integrated stream, wetland and floodplain functions as a means to deliver ecosystem services to society, increase natural capital, and integrate local community needs with an appreciation of natural resource values. Mr. Berg keeps up with the latest research on stream and wetland ecology through his active professional memberships with Society of Ecological Restoration, the Society of Wetland Scientists, Ecological Society of America, American Ecological Engineering Society, American Water Resources Association, Coastal and Estuarine Research Federation, and the Association of State Wetland Managers. Mr. Berg graduated with an M.S. in Marine, Estuarine, and Environmental Science from the University of Maryland in 1984 after two years working on Chesapeake Bay issues as a research fellow. He received a B.S. in Interdisciplinary Environmental Science from the California University of Pennsylvania in 1981. Mr. Berg recently served on the U.S. EPA's Chesapeake Bay Program Urban Stormwater Workgroups Stream Restoration Expert Panel to define removal rates for individual stream restoration projects, which identified the increased performance of streams reconnected to their floodplains.

Bernhardt, Emily S.

Duke University

Dr. Emily S. Bernhardt is an Associate Professor of Biogeochemistry in the Department of Biology at Duke University and Director of Duke University's Graduate Program in Ecology. She holds a B.S. in Biology from the University of North Carolina, Chapel Hill and a Ph.D. in Ecology and Evolutionary Biology from Cornell University. She joined the faculty at Duke in 2004. Dr. Bernhardt studies the role of climate and land use change in altering the biogeochemical connections between watersheds and receiving freshwaters. She is particularly interested in understanding how watershed degradation impacts the ecological structure and ecosystem function of streams and wetlands and the potential for reach and watershed scale restoration and intervention to reverse these impacts. Dr. Bernhardt has served as: a member of the NRC Committee on Challenges and Opportunities in the Hydrologic Sciences (2011-2012); the organizer of the National River Restoration Science Synthesis (2002-2005); a member of the Ecological Society of America Visions Committee (2002-2003); a member of the Frontiers in Ecosystem Science Working Group (2012-present). She is the recipient of the 2004 Hynes Award from the North American Benthological Society and the 2013 Yentsch-Schindler Award from the Association for the Sciences of Limnology and Oceanography. She currently serves as an editorial board member for the *Journal of Biogeosciences* and *Frontiers in Ecology and the Environment*. Her current research (2011-2015) is funded by the National Science Foundation, the U.S. EPA, and the Foundation for the Carolinas, with major projects examining: the environmental impacts of nanomaterials in aquatic ecosystems; the effects of mountaintop mining on stream ecosystems of Central Appalachia; the role of development configuration in altering urban stream pollutant signatures; and the effects of saltwater intrusion on coastal wetland carbon and nitrogen cycling.

Bernot, Melody

Ball State University

Dr. Melody J. Bernot is an Associate Professor of Biology at Ball State University in Muncie, Indiana. Dr. Bernot holds a B.S. in Biology and Chemistry from Marian University (Indianapolis) and a Ph.D. in Biology from Kansas State University. She conducted four years of post-doctoral research at the University of Notre Dame before becoming faculty at Murray State University in 2005 followed by a faculty position at Ball State University beginning in 2007. Dr. Bernot was promoted to Associate Professor at Ball State University in August 2012. Dr. Bernot studies the influence of land use on lotic ecosystems with specific emphasis on aquatic contaminant transport and retention in addition to effects on aquatic organisms. Her research focuses on inorganic contaminants (nitrogen, phosphorus) as well as emerging organic contaminants (herbicides, pesticides, pharmaceuticals). Dr. Bernot currently serves as an elected board member for the Indiana Water Monitoring Council and the Ohio River Valley chapter of the Society of Environmental Toxicology and Chemistry. She is also an appointed member of the Technical Advisory Group for the Indiana Department of Environmental Management. Dr. Bernot's research is funded by the United States Geological Survey, the National Science Foundation, National Oceanic and Atmospheric Administration regional Sea Grant awards, the National Park Service, and Indiana research programs.

Bilby, Robert E.

Weyerhaeuser Co

Dr. Robert E. Bilby is the Chief Environmental Scientist for Weyerhaeuser Company and is responsible for coordinating environmental research efforts on all company forest lands and developing collaborative programs with federal, academic, and environmental non-governmental (ENGO) research organizations. Dr. Bilby has conducted research on stream ecosystems, salmon and the effects of forestry on both since 1975. He received a B.S. in zoology from the University of Rhode Island and a Ph.D. in aquatic ecology from Cornell University. Prior to assuming his current position, Dr. Bilby managed the Environmental Forestry Research Program in Weyerhaeuser's Western Forestry Research Division and in the late 1990s managed the Watershed Processes Program at the National Marine Fisheries Service's Northwest Fisheries Science Center in Seattle. He is an affiliate faculty member at the University of Washington's College of the Environment. Dr. Bilby has served for the last twelve years on a scientific advisory board for the Northwest Power and Conservation Council that provides technical guidance for fish and wildlife restoration efforts within the Columbia River Basin. Dr. Bilby's research has included investigation of the role of large wood in streams and the impact of forestry on this material, response of stream trophic systems to disturbances, relationships between habitat characteristics and salmon productivity and the contribution that spawning salmon make to the nutrient capital and productivity of streams. He currently is co-lead (with Dr. Sherri Johnson of the U.S. Forest Service) of a large collaborative research effort (Trask Watershed Study) investigating the effects of logging on headwater streams and the extent to which impacts in the headwaters are transferred downstream to larger channels. Sources of funding for research efforts with which Dr. Bilby is currently involved include the U.S. Department of Energy, Oregon Department of Forestry, and National Council for Air and Stream Improvement.

Bledsoe, Brian

Colorado State University

Dr. Brian Bledsoe is a Professor in the Department of Civil and Environmental Engineering and the Graduate Degree Program in Ecology at Colorado State University. Dr. Bledsoe has over 25 years of experience as an engineer, hydrologist, and environmental scientist in the private and public sectors, including over 20 years of experience in stream and wetland restoration. He holds a B.M.E. in Mechanical Engineering from Georgia Institute of Technology, an M.S. in Restoration Ecology, Forestry, and Hydrology from North Carolina State University, and a Ph.D. in Civil Engineering from Colorado State University. Before joining Colorado State University, he worked in the private sector as a consulting engineer, and for the State of North Carolina as a stream and wetland restoration specialist and as nonpoint source program coordinator. Dr. Bledsoe's research is focused on the interface between hydrology and ecology with an emphasis on linkages among land use, hydrology, hydraulics, fluvial geomorphology, and water quality. He has examined relationships between hydrologic regimes and wetland plant communities in various regions of the U.S. He has also developed diverse models for predicting hydrologic regimes in ungaged basins. His research is currently funded by U.S. Department of Defense, U.S. EPA, the Colorado Water Conservation Board, Colorado Parks and Wildlife, the Eagle River Watershed Council, and the Southern California Coastal Water Research Project. In 2006, Dr. Bledsoe received a National Science Foundation CAREER Award, and in 2008 he served as a Fulbright Scholar in Chile where he worked on environmental flows for sustaining river ecosystems. He also has extensive experience in the development of practical diffuse pollution and hydromodification management strategies and tools. Dr. Bledsoe has served as an expert peer reviewer on the Platte River and San Juan River Recovery Implementation Programs, the Everglades and Louisiana Coastal Area restoration efforts, and the U.S. EPA Environmental Monitoring and Assessment Program. He is a licensed professional engineer in North Carolina and Colorado and has authored over 100 publications related to stream, wetland, and watershed processes, ecological restoration, and water quality.

Bomkamp, Tony

Glenn Lukos Associates Regulatory Services

Mr. Tony Bomkamp has been an environmental consultant at Glenn Lukos Associates since 1997 with extensive experience with permitting pursuant to Section 404 of the Clean Water Act. He has over thirty years of experience as a field biologist, wetlands ecologist, and regulatory specialist with an extensive background in wetlands and streams. Mr. Bomkamp has been on the part-time faculty at California State University, Fullerton since 1993, teaching courses on wetlands and endangered habitats in the graduate Environmental Studies Program. Mr. Bomkamp holds an M.S. in Environmental Studies from California State University, Fullerton (1993) and a B.S. in Biology from California State University, Fullerton (1976). Mr. Bomkamp is past President of the Orange County Chapter of the California Native Plant Society. He has particular expertise in wetland and steam delineation and has spoken at numerous conferences on various topics associated with wetland delineation. In addition, he regularly performs and supervises wetland delineations, riparian habitat evaluations, and wetland functional assessments throughout California in a variety of settings.

Booth, Derek

University of California Santa Barbara

Dr. Derek Booth is a geologist and geomorphologist with over 33 years of experience in federal and local public agencies (U.S. Geological Survey, King County Surface Water Management), academia, and private consulting. He is also the Senior Editor of the international journal Quaternary Research. He received his geology degrees from University of California, Berkeley (B.A.), Stanford University (M.S.), and University of Washington (Ph.D.), and also holds a B.A. in English Literature from Hampshire College. His current academic positions are Affiliate Professor at the University of Washington (in the departments of Civil Engineering and Earth Sciences) and an Adjunct Professor at University of California Santa Barbara (in the Bren School of Environmental Science and Management); he is also a licensed professional geologist and civil engineer. His primary research focus is the fluvial geomorphology of human-disturbed environments. He is author or co-author of more than 75 peer-reviewed journal articles and other publications, and nearly 100 invited conference and symposium presentations over the past decade. Teaching activities have included undergraduate and graduate courses in environmental geology and fluvial geomorphology; he has also taught multiple 1-, 2-, and 3-day professional courses on rivers, regional geology, and watershed management; and he was the lead instructor for the University of Washington's first certificate program in Stream Restoration. Dr. Booth has served on multiple scientific review committees and expert panels including the National Research Council's 2008-2009 evaluation of urban stormwater management, and other such panels that have: considered the flooding risk to western Washington's industrial corridor posed by the curtailed operations of the U.S. Army Corps of Engineers' Howard Hanson Dam on the Green River, reviewed a watershed assessment and management tool for the Washington State Department of Ecology, and supported conservation plans for endangered aquatic species and redevelopment for the City of Portland. He has received the Outstanding Contribution to Washington's Water Resources award from the Washington State chapter of the American Water Resources Association and the Merit Award for Environmental Planning from the American Planning Association. His academic and private-sector research and applied studies have been funded by diverse sources including U.S. EPA, U.S. Geological Survey, U.S. Army Corps of Engineers, California Ocean Protection Council, California Central Coast Regional Water Quality Control Board, Washington State Department of Ecology, and the Governor's Salmon Recovery Office.

Brooks, Robert P.

Pennsylvania State University

Dr. Robert P. Brooks is Professor of Geography and Ecology, and Founder and Director of Riparia at the Pennsylvania State University. Riparia is celebrating 20 years of success during 2013. He is a practicing wetland scientist, and wildlife biologist certified by the Society of Wetland Scientists and The Wildlife Society, respectively. He received a B.S. in Biology from Muhlenberg College, and an M.S and Ph.D. from the University of Massachusetts. For over 30 years, Dr. Brooks has built a research program in wetlands science and wildlife ecology that spans the full realm of topics relating to the ecology, management, policy, and conservation of wetlands, streams, and riparian areas, and their associated biota. He has published over 100 scientific articles and secured over $22 million to fund his students, staff, and projects. He has mentored 42 graduate students (30 masters, 12 doctoral) to completion of their degrees. He is the 2013 recipient of the National Wetlands Award for Science Research from the Environmental Law Institute. Dr. Brooks has served as the Director of six geographically-dispersed, interdisciplinary, multi-institutional research projects, including the Atlantic Slope Consortium (U.S. EPA, 2001-06), Bog Turtle Habitat Conservation Plan (U.S. Department of Interior, Fish and Wildlife Service, 2006-09), and Best Management Practices for Agricultural Watersheds (U.S. Department of Agriculture, Natural Resources Conservation Service, 2007-10). He is a member of the International Union for the Conservation of Nature Otter Specialist Group and on the Editorial Board of the Otter Specialist Group Bulletin. He served on the Louisiana Coastal Area Science Board from 2009-2011, and continues to serve on the Board of the Chesapeake Research Consortium, 2007-present. He chaired the national panel on wetland condition for the Report on the Environment, Washington, DC in 2008. Current research projects include the Mid-Atlantic Regional Wetlands Assessment (U.S. EPA, 2008-13, with the Virginia Institute of Marine Science), Using data from reference wetlands to enhance assessment and restoration in the Mid-Atlantic States (USEPA-Region 3, 2009-2013), Assessment of natural resource condition at selected units in the Northeast Region of the National Park Service (U.S. Department of Interior, National Park Service, 2010-2013), Ranavirus and *Batrachochytrium dendrobatidis* surveys of amphibian populations in mitigated and natural wetlands in Pennsylvania (Pennsylvania Department of Conservation and Natural Resources, 2013-14), and Refining landscape and field-based indicators in support of Pennsylvania's Wetlands Program Plan (U.S. EPA-Region 3, 2012-13). Through his leadership, Riparia has established numerous environmental indicators across multiple biological taxa (i.e., mammals, birds, amphibians, plants, and macroinvertebrates) and landscapes scales (i.e., wetland, stream reach, watershed, and landscape). He led the establishment of Penn State's Riparia Reference Wetlands Collection, comprising 220 natural wetlands distributed across the Commonwealth, which is becoming an essential resource for Pennsylvania and Mid-Atlantic regulatory and resource agency personnel. Dr. Brooks continues to work with an array of institutions, agencies, corporations, utilities, citizen groups, and individuals concerning natural resources issues and management, with an emphasis on assessments of wetlands and streams, habitat modeling for wetland-dependent wildlife, and restoration of aquatic ecosystems.

Burton, G. Allen

University of Michigan

Dr. G. Allen Burton is a Professor in the School of Natural Resources & Environment and in the Department of Earth & Environmental Sciences, and Director of both the Water Center and the Cooperative Institute of Limnology and Ecosystems Research at the University of Michigan. He holds a B.S. in biology and chemistry from Ouachita Baptist University, an M.S. in microbiology from Auburn University, and a Ph.D. in environmental science from the University of Texas at Dallas. His areas of expertise and research interests include: methods to identify significant effects and stressors in contaminated aquatic systems; ecosystem risk assessments evaluating multiple levels of biological organization; and integrating laboratory and in situ toxicity tests with habitat characterizations and physicochemical profiles to determine the role of chemical contaminants among multiple stressors; sediment and stormwater contaminants; understanding bioavailability processes, effects, and ecological risk at multiple trophic levels; and ranking stressor importance in human dominated watersheds. His research has focused on resulting in more than 200 publications. Dr. Burton's research on ecological risk assessment and aquatic ecosystem stressors has taken him to all seven continents with Visiting Scientist positions in New Zealand, Italy, and Portugal. He is Editor-in-Chief of the international journal, *Environmental Toxicology & Chemistry*, past president of the Society of Environmental Toxicology & Chemistry, and has served on numerous national and international panels, including the EPA Science Advisory Board's Committee on EPA's Ecological Assessment Action Plan (2012), the EPA Science Advisory Board's Ecological Processes and Effects Committee. His current research is funded by competitively awarded grants from U.S. EPA's Science to Achieve Results (STAR) Program, the Department of Energy's Strategic Environmental Restoration and Demonstration Program (SERDP), ESTCP, the Non-Ferrous Metal Industry Research Organizations, and the University of Michigan and Erb Family Foundation.

Caruso, Brian

University of Canterbury

Dr. Brian Caruso, P.E. is an Associate Professor in Civil and Natural Resources Engineering at the University of Canterbury in Christchurch, New Zealand and a registered Professional Engineer in the U.S. He received his B.S. in Environmental Biology from the State University of New York College of Environmental Science and Forestry, M.S. in Environmental and Water Resources Engineering from the University of Colorado, and Ph.D. in Hydrology and Environmental Engineering from Colorado State University. He has over 25 years of experience in environmental and water resources engineering, science, and management including academia, government, and consulting. From 2004-2009 Dr. Caruso served as Chief of the Wetlands and Watersheds Unit in the Ecosystems Protection and Restoration Division in U.S. EPA Region 8, and managed all the jurisdictional determinations and related science for the region. He also served as the U.S. EPA Office of Research and Development (ORD) Technical Liaison in Region 8. His areas of expertise include surface and groundwater hydrology/water quality, watershed modeling, contaminant fate and transport modeling, wetlands and riparian ecology and management, nonpoint source pollution and stormwater management, best management practices, contaminated sites remediation, and ecosystem restoration. The effective integration of science and management, especially with regard to jurisdictional determinations and the connectivity of streams and wetlands to downstream waters, is one of his primary areas of current research and publication. Dr. Caruso is Associate Editor for Riparian Ecology and Management for the *Journal of the American Water Resources Association*, reviewer for many international journals, and member of the American Geophysical Union and International Association of Hydrological Sciences. He is also a Joint Working Group Member for the Waterways Center for Freshwater Management, and has received several U.S. EPA ORD Superior Accomplishment Awards. Dr. Caruso has been funded in the past two years by the National Institute of Water and Atmospheric Research, Canterbury Regional Council, and Venture Southland in New Zealand.

Cohen, Matthew

University of Florida

Dr. Matthew Cohen is an Associate Professor in the School of Forest Resources and Conservation at the University of Florida. He holds a B.S. in Environmental Engineering from Swarthmore College, and an M.E. and Ph.D. in Environmental Engineering Sciences from the University of Florida. He has served as a technical reviewer for revised dissolved oxygen standards proposed by the State of Florida, and on the technical advisory committee of Florida's forestry best management practices. He recently was selected to review a report by the National Academy of Sciences on a large water supply study done by the St. Johns River Water Management District. He was the 2010 recipient of the University of Florida/Institute of Food and Agricultural Sciences' Richard L. Jones award for outstanding new research faculty. His research and teaching focus on the ecohydrology of wetlands and watersheds, including a significant focus on geographically isolated wetlands. He is trained as a systems ecologist and environmental engineer, with additional post-doctoral training in wetland soils and statistical and geostatistical modeling. Recently he was the principal investigator on a project funded by the U.S. EPA (Region IV Wetland Development Grant) that focused on the hydrology of isolated wetlands across a gradient of land use intensity. This work obtained high resolution time series of water level, documented surface-groundwater exchange between wetlands and the adjacent uplands, and used these measurements to develop a simulation model that enumerates the role of isolated wetlands in regulating regional surficial aquifer dynamics. His recent work has been funded by the National Science Foundation, the National Council for Air and Stream Improvement, the St. Johns River Water Management District, the Three Rivers Trust, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the Florida Forest Service, and the Everglades Foundation.

Coogan, Melinda

Buena Vista University

Dr. Melinda A. Coogan is an Associate Professor of Biology in the School of Science at Buena Vista University (BVU), Storm Lake, Iowa, where she joined the faculty in 2007. She holds a B.S. in Biology from East Carolina University, an M.S. in Biology from Western Illinois University, and a Ph.D. in Environmental Science from University of North Texas. Dr. Coogan's research interests in the field of aquatic toxicology involve bioaccumulation (BAC) of triclosan and triclocarban. Her publications with *Chemosphere* and *Environmental Toxicology and Chemistry* report BAC levels of the above-stated antimicrobial agents as emerging contaminants in algae and the aquatic snail Helisoma trivolvus. During the past five years, Dr. Coogan has served as a Raccoon River Watershed Association board member, Iowa Academy of Science Environmental and Health Science Section Chair, the Storm Lake Storm Water Advisory Board Chair, Buena Vista County Conservation Board member, Chile OMORA Project Advisory Board member, Draft Reviewer for Environment Canada on the environmental effects of triclosan, Comprehensive State (Iowa) Wetland Action Plan Committee member, and an Expert Panel member for the Mississippi River Basin Initiative (MRBI) Iowa for development of the Agren Inc. Raccoon River Basin Master Plan. She was the 2010 recipient of the Buena Vista University's Wythe Award, which allowed her to complete a spring, 2013 research sabbatical at the University of North Texas investigating physiological effects of environmental pollutants through the study of metabolomics. Dr. Coogan's research has been funded in recent years through collaboration with the Buena Vista County Natural Resources Conservation Service to support a three-year U.S. Department of Agriculture MRBI project, a Carver Family Instrumentation Grant to purchase a GC/MS, and through the Raccoon River Watershed Association and Veolia Storm Lake Water District to support BVU student research projects.

Corkhill, Frank

Arizona Department of Water Resources

Mr. Frank Corkhill is the Chief Hydrologist at the Arizona Department of Water Resources (ADWR) and has held this position for nearly six years. Prior to serving as Chief Hydrologist, Mr. Corkhill was the supervisor of the ADWR-Technical Support Section and a groundwater modeler for approximately two decades. Mr. Corkhill's work at ADWR has included the supervision of many hydrologists working on technical reviews of various well construction and groundwater related permits, groundwater modeling projects and water level and geophysical data collection activities. His specific area of expertise is numerical groundwater modeling; particularly as modeling is applied to building, calibrating and applying groundwater models to simulate past, present and future groundwater conditions in basin fill aquifer systems in central and southern Arizona. Such aquifer systems sometimes include direct or indirect connections to surface water features and riparian vegetation. Mr. Corkhill holds a B.S. in Geology from Arizona State University (1977) and has completed graduate studies in geology and hydrogeology at Arizona State University. Mr. Corkhill has authored and co-authored numerous groundwater modeling and basic data reports and reviews, and has been a guest speaker at numerous meetings and conferences. Mr. Corkhill has provided technical review comments to the U.S. Geological Survey (USGS, Tucson Office) on numerous USGS publications covering topics including groundwater modeling of regional aquifer systems that include groundwater/surface water/riparian features and land subsidence and groundwater use in Arizona. He also directly and/or indirectly supervises work units and individuals involved with hydrologic and geophysical data collection and analysis, and groundwater model development. Mr. Corkhill's current work and work for the last several years involves no research funding. Mr. Corkhill is currently working with a team of ADWR hydrologists on the completion and documentation of a revised groundwater flow model for the Pinal Active Management Area (AMA).

Corson, Angela

Missouri Department of Conservation

Ms. Angela Corson is the Stream Program Coordinator for the Missouri Department of Conservation (MDC). She has statewide responsibilities on stream policy and technical issues. She provides technical expertise to other State and Federal agencies such as the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, U.S. Forest Service, Natural Resource Conservation Service, and Missouri Department of Natural Resources (MDNR). Ms. Corson's educational background includes a B.S. in Biology from Central Missouri State University and a M.S. in Biology with emphasis in fisheries from Central Missouri State University. Her work with MDC has allowed her to become educated in the physical stream aspects of hydrology, geomorphology and interconnectivity. Her research activities include using GIS models to help locate unknown Topeka shiner populations and assess habitat and fish community associations; reach scale sediment transport after barrier removals in Ozark Streams; and application of various streambank stability assessments and models on Missouri streams. She has expertise in developing watershed assessments to evaluate stream health and watershed connectivity. She has served on the U.S. Army Corps of Engineers Missouri Stream Mitigation Method Review Committee to revise the method for 2012, the Comprehensive Conservation Strategy committee MDC, and is a current member of the American Water Resource Association and the Missouri American Fisheries Society.

Cross, Wyatt

Montana State University

Dr. Wyatt Cross is an Assistant Professor in the Department of Ecology at Montana State University (since 2008). He received his Ph.D. at the Institute of Ecology, University of Georgia (with Dr. Bruce Wallace), and a M.S. in Biology at the University of Alabama (with Dr. Arthur Benke). He has also held post-doctoral positions with Dr. Alan Covich (University of Georgia) and Dr. Robert O. Hall (University of Wyoming). Dr. Cross is a stream and river ecologist, with an emphasis on both food web ecology and ecosystem processes. He has studied a broad range of freshwater ecosystems, including streams and rivers in the eastern U.S., western Northern Rockies, and the tropics. His current research aims to quantify and predict responses of freshwater ecosystems to global change drivers, including climate warming (research in Iceland), large river regulation (Colorado River, Missouri River, and Yellowstone River), and eutrophication (Appalachian streams and septic-influenced mountain streams in Montana). He has a large amount of expertise in stream ecology, aquatic entomology, fisheries, and carbon and nutrient cycling. His work is consistently published in top-tier journals, and he currently serves on the editorial board for *Ecosphere*, a new journal from the Ecological Society of America. Dr. Cross also continues to serve on National Science Foundation proposal review panels and has been active in advising the Adaptive Management Working Group for the Colorado River in Grand Canyon. His research is currently supported by the National Science Foundation, U.S. Geological Survey, U.S. Fish and Wildlife Service, Montana Fish Wildlife and Parks, and Montana State University.

Dorney, John

Atkins North America

Mr. John Dorney is a Senior Environmental Scientist with Atkins North America. He has been employed by Atkins North America since October 2011 after working with the Water Quality Section of the North Carolina Division of Water Quality for about twenty-eight years. At Atkins, he is primarily responsible for administering a contract with the U.S. EPA for Clean Water Act assistance that primarily involves managing efforts to review mountaintop coal mine projects and conducting review of the grey (non peer-reviewed) literature for connectivity to downstream waters. In addition, Mr. Dorney is actively involved in stream and wetland functional assessment. While at the North Carolina Division of Water Quality, Mr. Dorney was responsible for the Clean Water Act Section 401 Water Quality Certification Program and was supervisor of the Wetlands/401 Unit that is responsible for regulatory review of development projects to ensure compliance with the state's wetland and buffer regulations - including close coordination with the U.S. Army Corps of Engineers and U.S. EPA with respect to unavoidable impacts and compensatory mitigation. From 2004 to 2011, Mr. Dorney was in charge of the Wetlands Program Development Unit which is responsible for: developing and implementing new or modified wetland regulatory policies and wetland monitoring, including cumulative and indirect impacts, compensatory mitigation, mapping and monitoring isolated wetlands; wetland classification systems and the National Wetland Condition Assessment; Federal Energy Regulatory Commission (FERC) permitting; and watershed monitoring. Mr. Dorney has a B.S. degree in Biology, an M.S. degree in Botany and an M.S. degree in Civil Engineering. Mr. Dorney has prepared numerous government agency reports and has published peer-reviewed articles concerning wetlands and water quality. He was a main author for a variety of rule writing efforts in North Carolina including the 401 Certification rules (15A NCAC 2H .0500), the Isolated Wetland Rules (15A NCAC 2H .1300), and the Neuse and Tar-Pamlico Riparian Protection Rules (15A NCAC 2B .0233 and .0259, respectively). While at the state of North Carolina, he served on several advisory committees. He served as co-chair of both the North Carolina Wetland Functional Assessment Team and North Carolina Stream Functional Assessment Team, and as co-chair of the Stream Advisory Committee for the Riparian Buffer Rules. Mr. Dorney's expertise primarily relates to stream ecology and characterization, wetland and stream functional assessment, isolated wetland extent and ecology, and to wetland and stream regulatory issues. He is actively involved in research or publications in wetland functional assessment, the extent and condition of isolated wetlands in the Southeastern U.S., the contribution of tree leaves from riparian buffers to stream ecosystems, and compensatory wetland, stream, and buffer mitigation. Mr. Dorney is the Project Manager for Atkins for an EPA contract - Wetlands and Aquatic Resources Technical Support. In addition, Mr. Dorney has been involved in conducting wetland functional assessments for private and public clients, conducting training on stream identification and wetland functional assessment as well as assisting the North Carolina Division of Water Quality with legal defense of various permitting actions. His sources of research funding in the past two years include the U.S. Environmental Protection Agency and the state of North Carolina when he was employed there.

Eaton, Lawrence

North Carolina Division of Water Quality

Mr. Lawrence Eaton is a Senior Specialist in the State of North Carolina's Division of Water Quality where has worked as a macroinvertebrate taxonomist and ecologist evaluating the State's streams and estuaries for the last 25 years. For the last decade, he has worked to document how streams start and what lives in these headwater streams and wetlands: six years of this work has been in North Carolina streams, three years has been in streams in the rest of the southeastern U.S. (U.S. EPA Region 4), and he is currently studying isolated and headwater wetlands in North Carolina. During this time he has expanded his work to include documenting the existence of a biological nexus, as per the U.S. Supreme Court Rapanos decision, between species in headwater streams and Traditionally Navigable Waters both in North Carolina and across the southeast. This work has been supported by U.S. EPA Wetlands Program Development grants. For the past eight years, Mr. Eaton has been part of a team teaching over 30 classes in how to identify stream origins in North Carolina, South Carolina, Georgia, Virginia, and Alabama. Mr. Eaton earned his B.S. from Iowa State University in 1979 and M.S. from Florida State University in 1985. He worked for the Florida Department of Environmental Regulation from 1984-1987 learning taxonomy of marine and freshwater organisms. He joined the U.S. EPA supported Southeastern Water Pollution Biologists Association in 1987, serving as its treasurer in 2000. He joined the Society for Freshwater Sciences in 2003 and he currently serves as committee chair for the Hynes new scientist award. Mr. Eaton's Federal advisory committee service has been as a member of the workgroup that assisted drafting the EPA document *Estuarine and Coastal Marine Waters: Bioassessment and Biocriteria Technical Guidance* (EPA-822-B-00-024).

Entrekin, Sally

University of Central Arkansas

Dr. Sally Entrekin is an Assistant Professor in biology at the University of Central Arkansas in Conwa, Arkansas. She earned an M.S. in Entomology at the University of Georgia and a Ph.D. in Biology at the University of Notre Dame. Her research has focused on the relationship between land transformation and biological communities and their associated processes, such as production and decomposition, in headwater streams and wetlands. A primary research goal is to understand how the acquisition, transformation, and transfer of energy and nutrients by biological communities in headwater streams and wetlands changes from large-scale alterations in catchment form and land use. Her current research has been focused on the Ozark Mountains, north-central Arkansas, and the Mississippi Alluvial Plain, with some wetland research conducted in Cordova, Alaska. Her specific projects include examining potential biological effects of natural gas development on headwater stream ecosystems, assessment of ecosystem functions of wetlands in the Arkansas River watershed to inform a wetland management plan, and the role of intermittency in headwater streams on ecosystem structure and function. Her research is currently funded by the Arkansas Game and Fish Commission State Wildlife Grant, The Nature Conservancy, U.S. Forest Service, and the National Science Foundation. Her teaching responsibilities have included courses in major's freshman biology, a capstone environmental science course, invertebrate zoology, ecology, ecosystem ecology, and restoration ecology. Dr. Entrekin has developed several new courses, successfully mentored undergraduate students and five master's students. She is currently a scientific advisory board member for a non-profit organization to raise citizen awareness of Arkansas' streams and rivers, the White Oak Bayou Wetland Management Plan funded by the U.S. EPA, Arkansas Leopold Education Project, and the Arkansas Water Resource Commission. She also has broad experience working in headwater streams and wetlands across the eastern U.S. from the Upper Peninsula of Michigan, south to the coastal plain of Florida, and east from the Appalachian Mountains to the Ouachita Mountains.

Fagan, William

University of Maryland

Dr. William F. Fagan is a Professor of Biology at the University of Maryland and Associate Director at the National Socio-environmental Synthesis Center (SESYNC). Dr. Fagan holds an Honors B.A. in Biology from the University of Delaware, and a Ph.D. in Zoology from the University of Washington. After post-doctoral experience at the National Center for Ecological Analysis and Synthesis (NCEAS), he joined the faculty at Arizona State University in 1997 and moved to University of Maryland in 2002. Dr. Fagan has expertise in ecological theory, quantitative modeling, and informatic approaches to ecological research. A key research focus involves the study of spatial processes governing the persistence and dynamics of populations and communities in a wide range of ecological systems, including a long-standing emphasis on the effects of connectivity on the biodiversity dynamics of river networks. Currently, Dr. Fagan is a member of the Editorial Board for the journals *Movement Ecology* and *Ecological Complexity*. Dr. Fagan was elected as a Fellow of the American Association for the Advancement of Science in 2012, received the Presidential Award from the American Society of Naturalists in 2005, and received a Guggenheim Fellowship in 2001. He was named a Distinguished Scholar-Teacher by the University of Maryland in 2009 for his cumulative contributions to science and education. Dr. Fagan's research has been funded in recent years by the National Science Foundation (eight different projects), National Aeronautics and Space Administration, the U.S. Department of Defense (Strategic Environmental Research and Development, SERDP, Program), the U.S. Geological Survey, the James S. McDonnell Foundation, and Oceanites, Inc. (a nonprofit focusing on Antarctica).

Fausch, Kurt

Colorado State University

Dr. Kurt Fausch is a Professor in the Department of Fish, Wildlife, and Conservation Biology at Colorado State University (CSU). He teaches graduate courses in sustaining river hydroecosystems for aquatic and riparian biota, and community ecology, and an undergraduate course in conservation of fish in aquatic ecosystems. He is currently (through July 2013) Acting Director of the Graduate Degree Program in Ecology, the largest interdisciplinary program at CSU, with over 165 faculty and 170 graduate students from 19 departments in 6 colleges. Dr. Fausch and his students have conducted basic and applied research on streams, stream fish, and their connections with riparian ecosystems. In particular, the research has focused on the importance of connectivity among critical habitats for fish in river hydroecosystems, and the role of "subsidies" of invertebrates between streams and riparian zones in sustaining organisms in both habitats. This research has been funded by agencies ranging from the National Science Foundation, U.S. Geological Survey, and the U.S. Forest Service to the Colorado Division of Wildlife. The work includes studies conducted throughout Colorado and the West, and worldwide, including Hokkaido in northern Japan where he worked with colleagues over a 15-year period. The research in Japan and the U.S. on linkages between streams and riparian zones has been chronicled in the documentary film *RiverWebs*, which has been broadcast to more than 100 million homes on PBS. Dr. Fausch has received several awards for his research and outreach, including the first International Fisheries Science Prize from the World Council of Fisheries Societies (2008) and Awards of Excellence from the American Fisheries Society (2010). He serves on the Independent Science Advisory Board of the Northwest Power and Conservation Council, which advises managers in the Columbia River basin about fish and wildlife conservation. Kurt has authored or co-authored 102 refereed articles, 7 book chapters, and scores of technical reports. He is currently finalizing a book to help the general public understand the interconnections between streams and rivers and their landscapes, and the importance of conserving these ecosystems. Dr. Faush's recent funding is from a consortium of the Wyoming Game and Fish Department, U.S. Forest Service, Bureau of Land Management, Natural Resources Conservation Service, and U.S. Geological Survey Biological Resources Division; the National Science; and the Colorado Division of Parks and Wildlife.

Fennessy, Siobhan

Kenyon College

Dr. Siobhan Fennessy is the Jordan Professor of Biology and Environmental Science at Kenyon College, where she studies wetland ecosystems, particularly how they respond to human disturbances (such as altered land use and hydrology, and the factors associated with climate change), carbon and nitrogen biogeochemical cycles, biological assessment methods, and restoration of damaged ecosystems. She received her M.S. in Natural Resources and Ph.D. in Environmental Biology from the Ohio State University under Professor W. J. Mitsch. She previously served on the faculty of the Geography Department of University College London and held a concurrent appointment at Tour du Valat, a wetland research station in the south of France. Dr. Fennessy served as a member of the U.S EPA's Biological Assessment of Wetlands Workgroup, a national technical committee working to develop biological indicators of ecosystem condition. She was a member of an Expert Panel convened by U.S. EPA to review Wetland Indicators for the Report on the Environment, 2008, U.S. EPA. In 2008, Dr. Fennessy was appointed to the National Research Council committee on the Water Supply Impacts in the St. John's River Watershed, which included studies of the connectivity of the river and wetlands in the watershed (Florida). That led to her 2012 appointment as a member of the Water Science and Technology Board, a governing board of the National Research Council/ National Academy of Sciences. Dr. Fennessy was also President of the North Central Chapter of the Society of Wetland Scientists, her term as past-president ends this year. Dr. Fennessy is currently serving as a Fulbright Senior Research Fellow in Spain working on water quality issues in rivers and wetlands in Catalonia. Other panels on which she has served include: review panel for the HydroGeoMorphic (HGM) wetland functional assessment method for the upper Des Plains River wetlands, for Battelle International/U.S. Army Corps of Engineers (2008); and review Panel for U.S. EPA on a report on the "Implications of Climate Change for Bioassessment Programs and Approaches to Account for Effects" (2011). Dr. Fennessy is currently working to develop a national rapid assessment method and plant-based biological indicators for use at 1,200 wetlands that were sampled across the U.S. in a congressionally-mandated wetland assessment project. As part of this project she participated in workshops to develop field methods and approaches to data analysis. Part of this effort will be to work to help bridge the results of the national wetland assessment with the results of the streams national assessment. She has co-authored two books, including *Wetland Plants: biology and ecology*. Dr. Fennessy's research is supported by funding from U.S. EPA and the Fulbright Foundation.

Fremier, Alexander

University of Idaho

Dr. Alexander Fremier has been an Assistant Professor in the College of Natural Resources at the University of Idaho since 2008. He received his B.S. degree in 1996 in Environmental Science and Mathematics at Principia College, and his M.A. (2003) and Ph.D. (2007) degrees at the University of California, Davis in Geography and Ecology, respectively. Dr. Fremier also served as a Postdoctoral Fellow at Hokkaido University, Japan focusing his research on how land use and river network structure influence the export of large wood. Currently he has a paper in press in *BioScience* on scaling ecosystem services in riparian areas, which specifically addresses the transfer of services from upstream to downstream locations. He is author or co-author on over a dozen archived articles. He has also served as a reviewer for National Science Foundation proposals as well as technical advisory committees on multiple river restoration projects. Dr. Fremier's main research interests are on quantifying how land use and water management impact the sustainability of river-riparian ecosystems and help to design balanced solutions. His research has recently been supported by the U.S. Department of Agriculture, the Nature Conservancy, U.S. Bureau of Reclamation, U.S. Geological Survey, De Vlieg Foundation, U.S. Department of Defense, National Science Foundation, and U.S. Fish and Wildlife Service.

Gabor, Shane

Ducks Unlimited Canada

Mr. Shane Gabor has been employed with Ducks Unlimited Canada since 1991 and is currently the Head of Policies Strategies for the Prairies. He received his M.Sc. in Wetland Ecology from McGill University and a B.S. in Wildlife Biology from the University of Montana. His current duties are to develop and coordinate the delivery of strategic policy-based government and industry policy initiatives for the conservation of wetlands and other natural areas. He currently sets direction for research and strategic communication of science related to water quality and quantity and social marketing. Mr. Gabor previously held the position of Research Biologist - Freshwater Initiative, a research program focused on understanding and communicating the environmental, economic and social value of the ecological goods and services provided to society by wetlands and other natural areas. His research on the environmental and economic impacts of wetland drainage on water quality and flooding has highlighted the critical need for effective wetland protection in Canada. He has provided expert testimony at the Walkerton (Ontario) and North Battleford (Saskatchewan) Inquiries regarding source water protection. Mr. Gabor's recent research has been funded by Environment Canada, RBC Bluewater Fund, Manitoba Rural Adapation Council and BHP Billiton.

Gibbons, J. Whitfield

University of Georgia

Dr. J. Whitfield Gibbons is Professor Emeritus of Ecology, University of Georgia, and is currently Head of the Environmental Outreach program at the Savannah River Ecology Laboratory. Professor Gibbons' expertise as an ecologist includes extensive experience in the conservation of natural and degraded wetlands with emphasis on reptiles and amphibians. His academic history includes B.S. and M.S degrees in Biology from the University of Alabama and a Ph.D. in Zoology from Michigan State University (1967). Dr. Gibbons has authored, co-authored, or edited 23 books, including *Compensating for Wetland Losses under the Clean Water Act* (2001; Zedler et al.) and *Freshwater wetlands and wildlife: Perspectives on Natural, Managed and Degraded Ecosystems* (1989. Sharitz and Gibbons). Dr. Gibbons has served on various panels and committees related to wetlands issues, including the following: National Research Council (National Academy of Sciences) Committee on Mitigating Wetland Losses; National Research Council (National Academy of Sciences) Life Sciences Panel for Review of Fellowship Applications; and the Wetlands Task Force to advise the South Carolina Senate (Agriculture and Natural Resources Committee) on conservation plans for Carolina bays and other natural wetlands. Dr. Gibbons' most recent sources of grant and contract support have been from the U.S. Department of Energy (DOE) and from the National Nuclear Security Administration (NNSA).

Gooseff, Michael

Pennsylvania State University

Dr. Michael Gooseff is an Associate Professor in the Department of Civil and Environmental Engineering at Pennsylvania State University. Dr. Gooseff holds a B.C.E. in Civil Engineering from the Georgia Institute of Technology and a M.S. and Ph.D. in Civil Engineering from the University of Colorado. Upon completing a Postdoctoral Fellowship at Oregon State University, Dr. Gooseff joined the faculty of the Department of Aquatic Watershed and Earth Resources at Utah State University as an Assistant Professor, and later moved to the Department of Geology and Geologic Engineering at the Colorado School of Mines. Dr. Gooseff is an expert in the connectivity of streams and their aquifers, specifically in the context of near-stream groundwaters (commonly referred to as "hyporheic zones"). He has conducted research on stream-groundwater interactions and hyporheic processes from arctic Alaska, to temperate watersheds, to polar deserts in Antarctica. He has authored 85 publications primarily on this subject, and has conducted over $17 Million in federally funded collaborative research on this subject. He serves on the editorial board of *EoS, Transactions, American Geophysical Union*, and as an associate editor for *Water Resources Research*, *WIREs Water*, and *Hydrology and Earth System Sciences*. Dr. Gooseff's research has primarily been supported by the National Science Foundation in recent years.

Gregory, James D.

North Carolina State University

Dr. James D. Gregory is Professor Emeritus, Department of Forestry and Environmental Resources, North Carolina State University. He is a Principal with Watershed Hydrology Consultants LLC, Wilmington, North Carolina. Dr. Gregory holds a B.S. in Forest Management (1965); M.S. in Soil Science (1968); and a Ph.D. in Forest & Watershed Hydrology (1975); all from North Carolina State University, Raleigh, North Carolina. Dr. Gregory's areas of expertise include research, teaching, and outreach involving: watershed hydrology and watershed assessment, including studies of the impact of forestry practices on water management and water quality, hydrologic modeling, and GIS applications in watershed assessment and hydrologic modeling; wetlands hydrology – series of studies in several different wetland types across North Carolina; wetlands restoration; instruction in wetland delineation, assessment, and regulations; headwaters streams – development, testing, and instruction on the North Carolina Division of Water Quality methodology for field identification of intermittent and perennial streams and their origins; research on the structure and functions of headwaters streams; and development of a LIDAR/GIS methodology for improved mapping of headwaters streams. Dr. Gregory's service on Advisory Committees includes: The North Carolina Governor's Coastal Water Management Task Force; The North Carolina Forest Practices Guidelines (BMPs) Technical Advisory Committee; North Carolina Sedimentation Commission Technical Advisory Committee; Co-Chair of the North Carolina Division of Water Quality Stream Technical Advisory Committee; Member of the U.S. Army Corps of Engineers Review Committee for the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region; North Carolina Forestry Association Task Force on Clean Water Act, Section 404(f) Regulations; and Chair of the North Carolina Forestry Task Force, Neuse River Basin Riparian Buffer Rule. Dr. Gregory has received no research grant funding since retiring from North Carolina State University in 2008.

Grossman, Gary

University of Georgia

Dr. Gary Grossman currently holds the position of Professor of Animal Ecology in the Warnell School of Forestry and Natural Resources at University of Georgia. Professor Grossman holds a B.Sc. degree in Conservation and Natural Resources from University of California, Berkeley and a Ph.D. in Animal Ecology and Limnology from University of California, Davis. After two years of post-doctoral work at University of California, Davis, Dr. Grossman joined the faculty of University of Georgia in 1981, where he currently teaches. From 2004-2009 Dr. Grossman held the title of Distinguished Research Professor. Dr. Grossman's expertise is in the field of population and community ecology of vertebrates. He has made seminal contributions to the understanding of the factors regulating the diversity and abundance of stream fishes world-wide. Dr. Grossman is a prolific author and has published 107 articles in 32 different refereed scientific journals; his work has been cited over 4000 times. He has served on review panels for the French National Science Center, U.S. Department of the Interior, Florida and Virginia Sea Grant programs, CALFED program, Delta Stewardship Council, and Smith Fellowship program and has been a member of the editorial boards of *Freshwater Biology* and *Ecology of Freshwater Fish* for the last 20 years. Dr. Grossman currently is a member of the Aquatic Technical Working Group for the National Ecological Observatory Network (NEON) and is the senior author of a white paper recommending fish sampling methods for the more than 30 National Observatories. In 2011 he was an Evans Fellow at the University of Otago in New Zealand. Dr. Grossman also staunchly believes in communicating science to the public and has lectured at local schools and interest groups like Trout Unlimited. He currently is the author of a bimonthly column for American Angler magazine entitled "Ask Dr. Trout." Finally, he also is a registered mediator in the state of Georgia. Dr. Grossman has received recent research support for a natural resource condition assessment for Gulf Islands National Seashore, Jean Lafitte National Historical Park and Preserve, Natches Trace Parkway, Shiloh National Military Park, and Vicksburg National Military Park.

Hall, Robert O.

University of Wyoming

Dr. Robert Hall is a Professor of Limnology in the Department of Zoology and Physiology at University of Wyoming. He is also the Director of the Ph.D. Program in Ecology at the University of Wyoming. He received a B.S from Cornell University in 1989 and a Ph.D. from University of Georgia in 1996. He spent two years as a postdoctoral associate at the Cary Institute of Ecosystem studies before joining the faculty at University of Wyoming in 1998. He teaches limnology and ecology at University of Wyoming. Dr. Hall studies energy flow through river food webs and how streams and rivers process nitrogen and carbon. He uses stable isotope approaches to measure removal and fate of nitrogen in streams. He has collaborated in a multiple-region study of controls on nitrate removal in small streams, with recent work on measuring controls of nutrient uptake and metabolism in large rivers. His food web work includes a multi-year study of carbon cycling and energy flow through food webs in the Colorado River, Grand Canyon. His current research is developing computational approaches of calculating ecosystem metabolism in rivers and streams. He is on the editorial boards for the journals *Freshwater Science* and *Oecologia*. Dr. Hall has been funded by the National Science Foundation (NSF) United States Geological Survey (USGS), Wyoming Water Development Commission, and U.S. EPA/National Science Foundation (NSF) Experimental Program to Stimulate Competitive Research (EPSCoR). His current research funding (2009 – 2015) is from NSF.

Harvey, Judson

U.S. Geological Survey

Dr. Judson W. Harvey is the lead scientist for the Hydroecology of Flowing Waters team of U.S. Geological Survey's (USGS) National Research Program. He investigates hydrologic transport processes and how they affect aquatic ecosystem processes in rivers and wetlands. Dr. Harvey holds a Ph.D. in Environmental Sciences from the University of Virginia and a B.A. in Environmental Sciences from New College, Florida. His field investigations and modeling studies have been conducted in environments ranging from steep forested watersheds in Colorado and California, alluvial rivers in Arizona and Louisiana, headwater streams and riverine floodplains of low-gradient Midwestern agricultural areas, restored and unrestored urban streams of the Atlantic coastal plain, and the vast but intensively managed Everglades floodplain in south Florida. Dr. Harvey's Recent research has been funded externally by the National Science Foundation, the National Park Service, and the Army Corps of Engineers. He frequently provides guidance on groundwater-surface water interactions and stream ecology, including to the Canadian Government in their review of the Canadian Rivers Institute, the National Science Foundation's Geosciences Directorate in their review of future directions in limnology, and the U.S. Environmental Protection Agency in their technical forums on groundwater/surface water interactions. Dr. Harvey also has served on editorial boards for *Water Resources Research* and *Wetlands*, and on committees of the American Geophysical Union, the National Research Council, and the American Society of Limnology and Oceanography. He frequently lectures internationally, including as a Parker Fellow in Japan in 1995 and as a visiting faculty member in 2011 at the National Groundwater Research and Training Center at Flinders University in Australia. Dr. Harvey's keynote lectures include the 2007 International Association of Hydrologists meeting on groundwater and ecosystems in Lisbon, the 2011 Sustainable Watersheds conference in Beijing, and the 2003 Gordon Conference on Catchment Science in New Hampshire. He has taught "Groundwater-Surface Water Relationships" at U.S. Geological Survey's National Training Center for nearly twenty years, and he is co-author of the immensely popular U.S. Geological Survey circular *Groundwater and Surface Water: A Single Resource* with 44,000 copies in print. Dr. Harvey was elected as a Fellow of the Geological Society of America in 2010.

Hawkins, Charles

Utah State University

Dr. Charles Hawkins is Interim Head of the Department of Watershed Sciences and Director of the Western Center for Monitoring and Assessment of Freshwater Ecosystems at Utah State University. He holds a B.A. in Biology (Biochemistry emphasis/Chemistry minor) from California State University, Sacramento (1973), an M.A. in Biology (Aquatic Biology emphasis) from California State University, Sacramento (1975), and a Ph.D. in Entomology (Aquatic Ecology emphasis/Statistics and Philosophy of Science minor) from Oregon State University (1982). Dr. Hawkins has been on the faculty of Utah State University since 1983 following completion of his Ph.D. work. His teaching responsibilities include graduate-level courses in general ecology, stream ecology, and communicating science. Dr. Hawkins' research focuses on the role that landscape setting plays in controlling community composition and richness in aquatic ecosystems; survey designs; predictive modeling of community composition; use of aquatic biota to assess and monitor ecological integrity; cumulative effects of watershed alteration on the physical, chemical, and biotic condition of aquatic and riparian ecosystems; and the biology and ecology of freshwater invertebrates, amphibians, and fishes. He has worked extensively with state and federal agencies to develop scientifically defensible indices of ecological condition and criteria for freshwater ecosystems and ways to simply and directly communicate the results of these technical analyses to the public. Dr. Hawkins' research has been supported by grants from, among others, the National Science Foundation, U.S. Environmental Protection Agency (EPA), U.S. Geological Survey, U.S. Forest Service, the U.S. National Park Service, and several State natural resource agencies. His most recent research projects address the effects of climate change on freshwater biodiversity and the indices used in ecological assessments, modeling and assessment of stream water temperature, and modeling the effects of bedrock geology on water chemistry to improve water quality assessments. He served two terms on the editorial board of the *Journal of the North American Benthological Society* and served a 4-year term as Vice-Chair and Chair of the Aquatic Ecology section of the Ecological Society of America. Dr. Hawkins served two terms (2001-2005) on the Ecological Processes and Effects Committee of the EPA's Science Advisory Board (SAB) and served on the Community Condition Indicators Committee for the H. John Heinz III Center for Science, Economics and the Environment. He has also previously served on an EPA SAB panel that reviewed EPA's Report on the Environment. In addition, he has served on numerous expert panel committees charged with evaluating federal environmental research laboratories, national monitoring needs, and state water monitoring programs. Dr. Hawkins is a key member of the technical analysis team that is developing and interpreting biological indices that support EPA's national assessments of ecological condition of the U.S. streams, rivers, lakes, and wetlands.

Hosseinipour, Edward Zia

Ventura County Watershed Protection District

Dr. E. Zia Hosseinipour serves as the Manager of Advanced Planning Section/Principal Water Resources Engineer for the Ventura County Watershed Protection District, Ventura, California. He received his M.S. and Ph.D. degrees in Civil/Environmental Engineering from North Carolina State University, Raleigh, North Carolina. Dr. Hosseinipour has held senior positions with DHI Water, Health & Environment, Inc., in the Tampa Bay office of DHI, Florida, as well as, Senior Water Resources Engineering positions with Tampa Bay Water and South Florida Water Management District, AScI Corporation in Athens, Georgia (U.S. EPA Research Laboratory, Athens Environmental Research Laboratory), and faculty positions at two Universities in water resources and environmental engineering. Dr. Hosseinipour has over 30 years experience in applied surface water hydrology, surface and groundwater management, environmental assessment, hydrologic/hydraulic and water quality modeling, hydrodynamic modeling, water supply and basin hydrologic assessment, integrated surface and groundwater modeling, and surface water-groundwater interactions. During the past 15 years, he has developed and applied hydrologic models and integrated water resources modeling tools to address short term and long term impacts on natural resource exploitations in support of water supply plans and ecosystem requirements, as well as flood plain delineation. He has extensive experience in applying and managing hydrologic/hydraulic, water quality, basin water resource assessment, and ecologic modeling projects. Recent major projects include managing and development of integrated hydrologic models for water supply planning, ecosystem protection and optimization of water production facilities (wellfields, rivers and reservoirs) for the largest wholesale water supply agency in central Florida. Dr. Hosseinipour has developed and applied the integrated hydrologic model in support of flood mitigation, permit applications, and ecosystem enhancements in Central Florida around Tampa Bay, and in southern California. He has also developed integrated hydrologic models for the South Florida Water Management District in support of long-term water supply plans, Comprehensive Everglades Restoration Projects (CERP), and mitigation of flooding in southwest Florida coastal basins. Dr. Hosseinipour has extensive knowledge of popular hydrologic/hydraulic models such as HSPF, MODFLOW, RIVMOD, HEC-RAS, ISGW, IHM, MIKESHE/MIKE 11, MIKE FLOOD, WASP4, and has used these models in numerous projects worldwide. Dr. Hosseinipour has served on a number of American Society of Civil Engineers/Environmental and Water Resources Institute (ACSE/EWRI) technical and task committees in the past 30 years including the Surface Water Hydrology Committee, Wetland Hydrology Committee and TMDL Task committee. He also serves as an Associate Editor of the *Journal of Hydrologic Engineering* of ASCE. He is a member of American Society of Civil Engineers, American Geophysical Union, Association of State Floodplain Managers, and American Institute of Hydrology, and serves as a reviewer for seven international water science, hydrology, environmental, and flood engineering journals. He has developed and conducted numerous workshops on hydraulics and hydrologic modeling for practicing engineers/scientists in the last 20 years using popular models such as HEC-RAS, MODFLOW, MIKE-SHE/MIKE 11 and MIKE FLOOD. In the past two years his agency has received funds from the Federal Emergency Management Agency and California Department of Water Resources to conduct hydraulic and hydrologic analysis/modeling in support of natural hazard delineation and emergency preparedness from extreme floods.

Hubbart, Jason

University of Missouri

Dr. Jason A. Hubbart is an Assistant Professor of Forest Hydrology in the Department of Forestry at the University of Missouri, Columbia. He directs the University of Missouri's Interdisciplinary Hydrology Laboratory and is also a Professor in the Department of Soils, Environmental and Atmospheric Sciences. Dr. Hubbart earned a B.S. in Ecology and an M.S. in Forest Ecology and Mammalogy from California State University, Fresno. He received his Ph.D. in Natural Resources (focus: Watershed Management, Water Quality and Forest Hydrology) from the University of Idaho at Moscow in 2007. Directly upon graduation he joined the University of Missouri faculty. For the past 15 years, Dr. Hubbart has been conducting research investigating contemporary forest harvest and riparian management practice affects on hydrologic regimes, water quality and biogeochemistry, hydro-climatic and biophysical response mechanisms, floodplain-wetland-stream and shallow ground water interactions, hydrogeomorphology, hydrologic scaling, and modeling. Much of Dr. Hubbart's research centers on forest management and the role of riparian, wetland and floodplain forests in terrestrial and aquatic connectivity. Dr. Hubbart teaches undergraduate courses in watershed management and water quality, environmental biophysics, hydrological field studies, and a graduate course in physical hydrology. Dr. Hubbart has served on a number of University standing committees, and currently serves as a member of a local Collaborative Adaptive Management (CAM) team charged to improve water quality for the removal of a local water body from the Clean Water Act Section 303(d) list of impaired waters. Dr. Hubbart is a member representative of the Missouri Forest Resources Advisory Council (MoFRAC), and a technical committee member of the Missouri Biomass Harvesting Management Practices council. Dr. Hubbart is an active member of the Society of American Foresters, the American Geophysical Union, the International Association of Hydrological Sciences, the Ecological Society of America, and the American Water Resources Association. Dr. Hubbart's research has been funded in recent years by the U.S. National Integrated Water Quality Program, National Institute of Food and Agriculture (U.S. NIFA), the U.S. Geological Survey (USGS), and the Missouri Department of Conservation (MDC).

Ice, George

National Council for Air and Stream Improvement, Inc.

Dr. George Ice retired from the National Council for Air and Stream Improvement (NCASI) in June of 2012 after a distinguished career with that organization spanning nearly 35 years. During that time he led NCASI's watershed research program. He helped initiate key forest paired watershed efforts, including the Mica Creek Watershed Study in Idaho, the Alto Watershed Study in Texas and Alsea Watershed Study Revisited in Oregon. He has a B.S. in Forest Management and an M.S. in Wildland Resource Science from the University of California, Berkeley and a Ph.D. in Forest Engineering from Oregon State University. He has been actively involved in research on the effects of forest practices on water quality, including timber harvesting, roads, fertilization, prescribed fire, and the application of herbicides. Water quality and watershed issues he has studied and published on include aquatic habitat conditions, best management practices effectiveness, dissolved oxygen, forest chemicals, landslides, nutrients, riparian management, sediment, temperature, Total Maximum Daily Loads, and water quality standards. His special research interests include the attainability of water quality standards in headwater streams and water-quality response to instream routing and processing. He has presented hundreds of papers and authored dozens of technical bulletins and peer reviewed articles. He has been co-editor for key publications, including *Science and Managment of Headwater Streams*, *A Century of Forest and Wildland Watershed Lessons*, and *Erosion and Sedimentation in the Pacific Rim*. He has courtesy faculty appointments in the Forest Engineering and Resource Management Department at Oregon State University. In 2012 he received the national Award in Forest Science from the Society of American Foresters. Dr. Ice's research has been supported by the National Council for Air and Stream Improvement, Inc. Additional funding for his research has been provided by the Oregon Forest Industries Council, U.S. Department of Agriculture Forest Service, Oregon Watershed Enhancement Board, and Plum Creek Timber Company.

Jacksier, Tracey

Air Liquide

Dr. Tracey Jacksier is an International Senior Expert and Director of the Analytical Sciences Global Lab at the Newark, Delaware Research and Technology Center of Air Liquide. She holds a B.S. in Biochemistry from Purdue University (1983) and a Ph.D. in Physical Chemistry from the University of Massachusetts (1992). Dr. Jacksier is responsible for defining the world-wide development of key technologies in specialty gases used for environmental compliance and improved industrial process quality, as well as the recommendation of new analytical technologies within the Air Liquide Group. She is also the Project Manager covering research entitled "Assessment of CO_2 Compression and Purification Technology for Near Zero Emissions from Oxy-Coal Combustion" on a CRADA (cooperative research and development agreement) with the National Risk Management Research Laboratory of the U.S. Environmental Protection Agency. She has conducted research for measuring many criteria emissions, both domestically and internationally. She has been with Air Liquide for 20 years; prior to her current position, she has served as Analysis Group Manager, Project Manager for Elemental Analysis, and Postdoctoral Researcher. Her research includes impurity measurements in alternative fuels and gaseous emissions at ultra-low concentrations. Prior to joining Air Liquide, Dr. Jacksier served in the Cooperative Education Program and as a Chemist at International Business Machines in New York. She has authored or co-authored more than 100 articles and technical presentations and holds patents in the areas of gas purification and standard manufacturing. Dr. Jacksier currently serves on the advisory board of Princeton University Engineering Research Center on Mid-Infrared Technologies for Health and the Environment. She is also a member of the Committee of Visitors for the Engineering Education and Centers Division of the Directorate for Engineering of the National Science Foundation. Dr. Jacksier's research has been supported by funding from Air Liquide, and she has received no external grants from government agencies, private companies, or foundations.

Jackson, Scott

University of Massachusetts

Mr. Scott Jackson is Extension Associate Professor in the Department of Environmental Conservation at the University of Massachusetts Amherst. Mr. Jackson holds a B.S. in Biology from Allegheny College and an M.S. in Wildlife Biology from the University of Massachusetts Amherst. He worked for four years for the Massachusetts Audubon Society before joining the University of Massachusetts in 1992. At the University of Massachusetts Mr. Jackson began as an extension wildlife specialist and served for 17 years as Program Director for University of Massachusetts Extension's Natural Resources and Environmental Conservation program. He has taught courses and workshops on wetlands ecology and conservation, biodiversity conservation, the ecology and conservation of amphibians and reptiles, and general New England natural history. He has been involved in the use of underpass systems to facilitate wildlife movement across roads and development of methods for evaluating the effectiveness of animal passage structures. He has been involved in the development of standards for road-stream crossing structures, survey protocols for assessing crossing structures, and approaches for prioritizing structures for replacement. Research interests include: ecology and breeding biology of amphibians, vernal pool ecology, wetland assessment and monitoring, impacts of roads and highways on wildlife, and landscape-based ecological assessment. Significant integrated research/extension projects include the Conservation Assessment and Prioritization System (CAPS), The River and Stream Continuity Project, and the Massachusetts Wetlands Assessment and Monitoring Program. As a private consultant he conducted wildlife habitat evaluations, natural resource inventories, rare species surveys, project reviews, and development of conservation plans. Mr. Jackson is a member of the Whately Conservation Commission and serves on the Board of Directors for the Massachusetts Association of Conservation Commissions (MACC) and the Kestrel Land Trust. He has also served on the following advisory committees: Massachusetts Division of Water Supply Protection Science and Technical Advisory Committee, Massachusetts Natural Heritage and Endangered Species Advisory Committee, Massachusetts Watershed Initiative Steering Committee, Massachusetts Department of Environmental Protection Regulatory Reform Advisory Committee, and the Pioneer Valley Planning Commission's Western Massachusetts Climate Action Advisory Committee. Mr. Jackson's research and extension work have been funded in recent years by the U.S. Environmental Protection Agency, Massachusetts Department of Environmental Protection, Federal Highway Administration via the Massachusetts Department of Transportation, The Nature Conservancy, Housatonic River Natural Resource Damages Fund via the Housatonic Valley Association, National Grid via Vanasse Hangen Brustlin, Inc., the Connecticut Department of Transportation via BL Companies, U.S. Department of Agriculture-National Institute for Food and Agriculture via the University of Rhode Island, and The Last Green Valley, Inc.

Jawitz, James W.

University of Florida

Dr. James Jawitz is Professor of Environmental Hydrology and Associate Chair of the Soil and Water Science Department at the University of Florida. Dr. Jawitz holds a B.S. in Environmental Engineering, M.E. in Mechanical Engineering, and Ph.D. in Environmental Engineering from the University of Florida. He has previously held positions as Associate Professor at the University of Florida, Assistant Professor at the University of Illinois at Chicago, Assistant Professor at Purdue University, and Engineering Fellow at the U.S. Department of Energy Lawrence Livermore National Laboratory. The overarching theme of Dr. Jawitz's research program is water resource sustainability, which emphasizes securing sufficient water resources for urban and agricultural users while also ensuring protection for natural hydrologic systems. Hydrologic systems of particular interest include surface waters such as rivers, lakes, and wetlands whose ecological integrity has been compromised by water withdrawals or excess nutrient loading, as well as groundwater resources that are threatened by uncontrolled releases of anthropogenic contaminants such as petroleum hydrocarbons and chlorinated solvents. Water resource protection and allocation is recognized as a significant challenge not just in Florida, but also nationally and globally. Since 2006, Dr. Jawitz has served as principal investigator (PI) or Co-PI on over $3.5 million in external funding from state and federal agencies that address each of these objectives. At the national level, his work has been supported by the National Science Foundation (NSF), U.S. Environmental Protection Agency, U.S. Department of Defense (DoD), U.S. Geological Survey, U.S. Department of the Interior-National Park Service, and U.S. Department of Agriculture. State, regional, and local support has come from the South Florida Water Management District (SFWMD), Florida Department of Agriculture and Consumer Services (FDACS), City of Orlando, Palm Beach County Water Utility District, and the Choctawhatchee Basin Alliance. These diverse funding sources attest to the breadth of Dr. Jawitz's research contributions and its broad appeal and applicability to resource managers, planners and scientists across a spectrum of disciplines and ecosystems. Since 2011, his research has been funded by the NSF, DoD's Strategic Environmental Research and Development Program, the National Water Research Institute, the Florida Department of Agriculture and Consumer Services, and the South Florida Water Management District. Dr. Jawitz's research has contributed significantly to the fields of groundwater quality protection, wetland restoration, and watershed-scale water quality forecasting. Since 2006, he has published more than 40 papers in high-impact peer-reviewed journals. His research advancements in theory and practice for the clean-up of contaminated groundwater are recognized by academic scientists, consulting practitioners, and government regulators. He has organized academic symposia on protection and remediation of contaminated groundwater at international conferences in Europe and the U.S., and has presented invited lectures in the U.S., Canada, and Mexico. He served as an invited instructor for U.S. EPA regulators at their annual national training conference, and as keynote speaker at a 2009 national conference for remediation practitioners. Dr. Jawitz's has delivered invited lectures to national and international audiences of academics and natural resource managers on topics such as his work on Everglades ecosystem restoration, coupled hydrologic and biogeochemical modeling, watershed-scale protection of Lake Okeechobee, wetlands in agricultural landscapes, and management of Florida lakes. Dr. Jawitz's ecohydrology research in Florida is sought and well supported by State and Federal agencies. His recent contributions include development of new technology, patented in 2007, to measure pollutant loads in surface water bodies, an important component of monitoring programs mandated by the Clean Water Act. Dr. Jawitz is committed to education and mentoring. Since 2006, he has served on more than 40 graduate student committees from 7 academic departments and was appointed as Graduate Coordinator for the Soil and Water Science Department in 2007. Dr. Jawitz's research, teaching, and leadership are also recognized campus-wide: in 2006, he was elected to serve a three-year term on the faculty oversight committee for the University of Florida Water Institute, and in 2010 he was elected to serve as the chair for the University of Florida Hydrologic Sciences Academic Cluster, a campus-wide interdisciplinary graduate academic program. He was recognized as Teacher/Advisor of the Year in his department (2005-2006), Professor of the Year in his college (2006), and Graduate Teacher/Advisor of the Year in his college (2008-2009).

Johnson, Lucinda

University of Minnesota Duluth

Dr. Lucinda Johnson is Director of the Center for Water and the Environment at the University of Minnesota's Natural Resources Research Institute. She holds a B.A in Botany from Duke University, an M.S. in Entomology from State University of New York, College of Environmental Science and Forestry, and a Ph.D. in Zoology from Michigan State University. Dr. Johnson is an aquatic and landscape ecologist whose research focuses on the impacts of multiple stressors on aquatic ecosystems with emphasis on human activities (e.g., land use) and climate change. Much of her work has involved quantifying interactions between terrestrial and aquatic ecosystems, with particular emphasis on effects on communities and habitats. Dr. Johnson's current research activities involve: validating indicators of condition for Great Lakes coastal ecosystems; assessing climate change and land use change impacts on amphibian communities in the Prairie Pothole Region; and predicting climate change impacts on coldwater fish communities in northern lakes and streams. Her research on amphibians specifically addresses the concept of functional landscape connectivity of wetlands with respect to changing hydrologic conditions associated with climate change. In addition, Johnson and her team consider the connectivity and spatial position of landscape patches (especially urban, agricultural land use) in predicting ecosystem processes and community structure in streams. Dr. Johnson serves on numerous advisory committees advising the State of Minnesota on climate change impacts on aquatic systems. Dr. Johnson has held leadership positions in the Association of Ecosystem Research Centers (President, 2008-2010) and the North American Benthological Society (President, 2010-2011), She is a member of the U.S. Environmental Protection Agency (EPA) Science Advisory Board (SAB) Ecological Processes and Effects Committee and participated on the SAB panel evaluating the effects of Mountain Top Removal Mining and the Conductivity Benchmark (2010-2011). Dr. Johnson's research is currently funded by grants from the U.S. EPA Great Lakes Restoration Initiative, the Minnesota Pollution Control Agency, and the U.S. Geological Survey Climate Change Program.

Josselyn, Michael

Wetlands Research Associates, Inc.

Dr. Michael Josselyn is a Professor Emeritus at San Francisco State University following 22 years as a Professor of Biology and Director of the University's Romberg Tiburon Center for Environmental Studies. He received three meritorious performance and professional promise awards from San Francisco State. Dr. Josselyn holds a Ph.D. in Marine Botany from the University of New Hampshire (1978), an M.S. in Marine Science from the University of Miami (1975), and a B.S. in Biology from Cornell University (1972). He is a certified Professional Wetland Scientist and was elected as a Lifetime Fellow of the California Academy of Science in 1984. Dr. Josselyn has taught courses in wetland restoration and mitigation for the U.S. Army Corps of Engineers, the Wetland Training Institute, and CLE International. He also annually teaches the 40 hour Wetland Delineator Certification course with a focus on arid west systems. Dr. Josselyn consults internationally on wetland ecology and restoration and has authored or edited several manuals and over 50 articles on wetland ecology and mitigation, published in national and international scientific journals. He has served on national advisory committees to the U.S. Army Corps of Engineers, U.S. EPA, U.S. Fish and Wildlife Service, the National Oceanic and Atmospheric Administration, and the National Wetlands Technical Council in the development of federal wetland policy and research. Dr. Josselyn has been a peer reviewer for state Total Maximum Daily Load programs and served on the South San Francisco Bay Salt Pond Restoration Project Science Advisory Team, the southern California Wetland Recovery Plan Science Advisory Panel, the Ballona Wetlands Science Advisory Panel, and the Boeing Santa Susanna Laboratory Expert Stormwater Panel. His national professional affiliations include the Society of Wetland Scientists and the American Association for the Advancement of Science. He is the Past President of the Professional Wetland Scientist Certification Program and served on the Board and the Certification Committee. He has served on the Editorial Boards of the journals *Wetlands*, *Estuaries*, and *Urban Ecology*. Dr. Josselyn is presently a Principal with WRA, Inc. (Wetlands Research Associates), which he co-founded. His work focuses on wetland delineation and regulatory permitting, large scale conservation planning, habitat restoration, and expert testimony related to wetland delineation and mitigation banking. He has completed major wetland mitigation and restoration projects for transportation agencies, port authorities, land holders, and non-profit organizations. He was the lead biologist for major conservation plans associated with the 240,000 acre Tejon Ranch in Kern County, the Sunrise Powerlink in San Diego, and several large scale wetland restoration projects throughout the nation. Dr. Josselyn has received recognition awards for his work at the 1000-acre Bolsa Chica tidal restoration project, including Conservator of the Year in 2000 from the Bolsa Chica Conservancy, the Gateway Center tidal wetland on San Francisco Bay, and for the design of freshwater wetlands at the San Lucia Preserve in Monterey. Dr. Josselyn regularly works with federal and state regulators and has provided expert consultation and witness services for the U.S. Department of Justice, the California State Attorney General's office, and private parties. He has testified on wetland delineation dealing with technical aspects related to wetland determinations for both coastal and inland wetland systems. He has completed wetland delineations in arid west systems including desert dry washes, wet meadows in the Sierra Nevada Mountains, vernal pools in the Central Valley, and inland and coastal marshes. Dr. Josselyn has not received federal or state research funding in the past two years.

Kalin, Latif

Auburn University

Dr. Latif Kalin is an Associate Professor at Auburn University School of Forestry and Wildlife Sciences. He has been at Auburn University since 2006 and teaches courses on forest hydrology and nonpoint source pollution modeling. He received his Ph.D. from Purdue University in Civil Engineering in 2002 and worked at U.S EPA in a post-doctoral position from 2000 to 2006. His research, in general, is on water quality/quantity modeling at various scales with special interest in nutrient cycling in natural and constructed wetlands and urbanization effects on water quality/quantity. With support from a U.S. EPA funded grant his group recently developed a wetland water quality model for nitrogen, phosphorus, carbon and sediment cycles. Dr. Kalin has authored or co-authored 30 peer reviewed journal articles and 4 book chapters and has given talks in numerous international conferences. He currently serves on the editorial boards of *Journal of the American Water Resources Association* (JAWRA) and *Journal of Water Quality, Exposure and Health* (WQEH). Dr. Kalin is the current chair of the Wetland Hydrology Technical Committee of the Environmental and Water Resources Institute (EWRI), which is an American Society of Civil Engineers (ASCE) institute. Dr. Kalin received the U.S. EPA 2009 Scientific and Technological Achievement Award, and the *Journal of Hydrologic Engineering* Best Reviewer Award both in 2010 and 2011. Over the past six years Dr. Kalin has received grants, either as a principal investigator (PI) or co-PI, from several federal agencies including U.S. EPA, National Oceanic and Atmospheric Administration (NOAA), Federal Aviation Administration (FAA) and U.S. Department of Agriculture Forest Service. Dr. Kalin is currently involved in the following research projects: Wetland Nutrients and Carbon Cycling Modeling (funded by the U.S. EPA, single PI), Determining the Role of Headwater Wetlands for Water Quality Improvements in Coastal Alabama (funded by the NOAA SeaGrant program, co-PI), Impact of Forest to Urban Conversion on Human Health (funded by the U.S. Forest Service, co-PI).

Kane, Douglas

University of Alaska, Fairbanks

Dr. Douglas L. Kane is currently Professor Emeritus at the University of Alaska, Fairbanks. Dr. Kane holds a B.S. and M.S. in Civil Engineering from the University of Wisconsin and a Ph.D. in Civil Engineering from the University of Minnesota. At the University of Alaska, Fairbanks, Dr. Kane taught in the Civil and Environmental Engineering department for 25 years (1975-2000), directed the Water and Environmental Research Center for 20 years (1989-2009) and directed the Institute of Northern Engineering for 7 years (1999-2005). Dr. Kane's research interests include: groundwater hydrology, snow hydrology, hydraulics, water resources engineering, cold regions hydrology, climate change, fish hydraulics, and heat transfer. Since 1968 he has carried out hydrologic related research in the Arctic and sub-Arctic. Results have been published in more than 100 refereed journal articles and numerous reports. His research has recently been supported by the National Science Foundation, U.S. Fish and Wildlife Service, Alaska Department of Transportation and Public Facilities, Alaska Department of Natural Resources, U.S. Department of Energy, and the National Aeronautics and Space Administration. Dr. Kane is a past member of CLiC Science Steering Group (Climate and the Cryosphere, World Climate Research Program, WMO) and three National Research Council/National Academy of Sciences committees (Permafrost, Frost Heave, and Wetlands), and past president of U.S. Permafrost Association. Currently he is a member of NSSI Science Technical Advisory Panel (North Slope Science Initiative, U.S. Department of the Interior). Professionally, Dr. Kane has organized several conferences, symposiums and workshops, including the 2008 International permafrost conference with approximately 700 attendees and more than 2,000 proceeding pages; produced as Editor numerous publications from reports to proceedings to special issue referred journals; reviewed numerous research proposals and journal publications; participated in numerous professional organizations (American Society of Civil Engineers, American Geophysical Union, American Water Resources Association (Fellow), American Institute of Hydrology, Arctic Institute of North America); and served on several editorial boards.

Kaplan, Louis

Stroud Water Research Center

Dr. Louis A. Kaplan is a Senior Research Scientist at the Stroud Water Research Center. He is has adjunct appointments as a Professor of Biology at the University of Pennsylvania and a member of the Delaware Institute of the Environment at the University of Delaware. Dr. Kaplan holds a B.A. in Environmental Studies from Franklin and Marshall College, an M.S. in Ecology from University of California, Davis, and a Ph.D. in Biology and Limnology from the University of Pennsylvania. He is a Fellow of the American Academy of Microbiology. Dr. Kaplan is a freshwater ecosystem scientist working on cross-disciplinary research that spans the frontiers of organic matter biogeochemistry and microbial ecology. In particular, Dr. Kaplan studies stream and river ecosystems, characterizing the molecular composition of naturally occurring dissolved organic matter, the structure of communities of bacterial heterotrophs, and the interactions of the two. His funding over the last two years primarily has been from the National Science Foundation with additional funding from the U. S. Department of Justice. Dr. Kaplan has served on the editorial board for *Applied and Environmental Microbiology* and the Executive Committee of the North American Benthological Society. He was an external reviewer for a U.S. Geological Survey program in the San Joaquin Delta and the J.W. Jones Ecological Research Center, and served on a technical advisory committee for an Ecosystem Research project funded by the U.S. Environmental Protection Agency, U.S. Department of Energy and U.S. Department of Defense. Dr. Kaplan was the Chair of a Joint Task Group for Standard Methods for the Analysis of Water and Wastewater. He has written about the scientific imperative for defending small streams and wetlands.

Keim, Richard

Louisiana State University

Dr. Richard F. Keim is Associate Professor in the School of Renewable Natural Resources at Louisiana State University. He received a Ph.D. in Forest Engineering (Forest Hydrology) from Oregon State University and M.S. and B.S. degrees in Forestry from Mississippi State University. Dr. Keim's research focuses on forested wetland hydrology and ecology, specializing in forested wetland responses to hydrologic change, stream-wetland hydrologic connectivity, and influence of forests on the hydrologic cycle. His research is primarily field-based, though some includes modeling and remote sensing as well. Dr. Keim's service on advisory committees includes: (1) Louisiana Governor's Science Working Group on Coastal Wetland Forest Conservation and Use (2004-5); (2) Integrated Earth Observation System (IEOS) Public Engagement Workshop, National Aeronautics and Space Administration/National Oceanic and Atmospheric Administration (NASA/NOAA) United States Group on Earth Observations, Washington D.C., (2005); and (3) Baton Rouge City-Parish Water Quality Enhancement Committee (2012). Dr. Keim's research is currently funded by grants from: the U.S. Army Corps of Engineers; the National Science Foundation; The Louisiana Department of Wildlife and Fisheries; and the Louisiana Agricultural Center and University of Louisiana at Monroe.

Kolm, Kenneth

Hydrologic Systems Analysis, LLC

Dr. Kenneth E. Kolm is President/Senior Hydrogeologist and Hydrologic and Environmental Systems Specialist at Hydrologic Systems Analysis, LLC., and Associate Professor Emeritus of Environmental Science and Engineering, Colorado School of Mines, Golden, Colorado. He holds a B.S. in Geological Sciences from Lehigh University, Pennsylvania, and an M.S. and Ph.D. in Geology (minor in Ecology) from the University of Wyoming. Dr. Kolm has more than 35 years of professional experience, including 25 years of academic teaching and research, 5 years of Argonne National Laboratory research, and over 10 years of formal private consulting that includes private sector and government work, and litigation support. Dr. Kolm specializes in the fields of hydrogeology, geomorphology, and hydrologic and environmental systems analysis, with an emphasis on groundwater and surface water science and engineering, wetlands environments, expedited environmental site characterization and remediation, and watershed and ecosystem characterization, management, and restoration. He developed the integrated Hydrologic and Environmental Systems Analysis (HESA) for holistic Conceptual Site Model development, and has applied it to mine and resource development and mined-land restoration, municipal management of groundwater system supply and pollution, watershed and site-scale pollution prevention and Superfund cleanup, and water rights and water quality expert witness and litigation support. Dr. Kolm undertakes a geo-based, systems-oriented, multidisciplinary, multi-temporal and multi-scale approach to solving environmental and engineering problems, incorporating the use of both field and laboratory methods and computer and mathematical modeling tools. In addition to his diverse consulting business, Dr. Kolm most recently conducted research with a multidisciplinary team, initially supported by the National Science Foundation and led by anthropologists and archaeologists, regarding the conceptual and mathematical modeling of the paleohydrological system structure and function for the Canyon of the Ancients region. The goal of this HESA-based research was to determine if lack of sustainable drinking water supplies caused the collapse of the Mesa Verde prehistoric societies in the Four Corners Region of the U.S.

Kominoski, John

Florida International University

Dr. John Kominoski is Assistant Professor in the Department of Biological Sciences and Southeast Environmental Research Center at Florida International University (FIU). He holds a Ph.D. in Ecology from the University of Georgia, an M.S. in Biology from Loyola University Chicago, and a B.A. in Biology from Augustana College. He has extensive postdoctoral experience examining forested stream ecosystems through the University of British Columbia (2008-2010) and the University of Georgia (2010-2013). He joined the faculty of FIU in spring 2013, and his teaching responsibilities include an undergraduate course in general ecology and a graduate course in community and ecosystem ecology. Dr. Kominoski is broadly interested in exploring the functional implications of biodiversity loss and global environmental change in terrestrial and aquatic ecosystems. His research has focused on the indirect effects of elevated atmospheric CO_2 and human land-use on aquatic ecosystems, as well as the importance of resource and consumer diversity in determining organic matter processing in terrestrial and aquatic ecosystems. He is currently investigating: 1) how changes in riparian forest composition influence stream biodiversity, and resource-consumer dynamics; 2) scaling consumer (top-down) influences on decomposition, primary production, and metabolism; 3) how variation in stream water nutrient ratios (N:P) differentially alters food web structure and metabolism; 4) the influence of drought on Southwestern and Southeastern U.S. freshwater ecosystems; and 5) how vulnerability of freshwater coastal ecosystems to sea-level rise influence biocomplexity and carbon cycling in the face of rising sea level and marine storm surge. His current research is funded by two National Science Foundation grants. Dr. Kominoski is a member of Sigma Xi, Association of the Sciences of Limnology and Oceanography, Society for Freshwater Science, and the Ecological Society of America.

Kramka, Larry

Houston Engineering, Inc

Mr. Larry Kramka is the Environmental Service Sector Lead for Houston Engineering, Inc. in Maple Grove, Minnesota. Since August of 2012, he has led the firm's environmental sciences, wetlands management, environmental review, mining, regulatory, and permitting efforts. He also provides guidance and assists the firm in the areas of water quality, Total Maximum Daily Loads, and the development of Web Decision Support Applications. Prior to working in the private sector, Mr. Kramka served at the Minnesota Department of Natural Resources (DNR) for over 20 years with duties ranging from executive management to field hydrologist. Mr. Kramka earned a B.S. degree in natural resources and environmental studies with a Water Resources emphasis from the University of Minnesota in 1990. His coursework included hydrology, hydrologic design, fluid mechanics, open channel hydraulics, statistics, soils, water resources engineering, tracers in hydrogeology, groundwater hydrology, forest hydrology, climatology, natural resource policy and planning, and natural resource economics. He successfully completed an executive education program at the University of Minnesota - Carlson School Of Management, Minnesota Executive Program in 2010, which included curriculum in business strategy, business alignment, finance, and leadership. At DNR, he was appointed the Director of the Lands and Minerals division in January of 2011. His responsibilities included the oversight of the State's trust fund lands, mineral rights, mine permit administration, mine land reclamation, mine wetland conservation, and the department's real estate functions. In 2007, he was appointed to be the Assistant Commissioner for Operations, where he was responsible for the divisions of Ecological and Water Resources, Enforcement, and Lands and Minerals as well as the support bureaus of Human Resources, Office of Communication and Outreach, and Management Resources. Most of his career was spent as a hydrologist in the field organization managing water resources in 44 of Minnesota's 87 counties and providing regulatory oversight of hundreds of water resource projects. He developed broad experience in managing water resource challenges across diverse geography, geologic settings, three major watersheds (Mississippi, Missouri, and Red River basins) and with border waters in three states and two provinces. He served in Bemidji, Minnesota for seven years as the DNR's regional hydrologist for northwestern Minnesota and as a hydrologist in St. Cloud, Marshall, New Ulm, and Mankato, Minnesota. His responsibilities included management of surface and ground water resources, public water and wetland conservation, watershed management and interagency coordination. His activities included the development and review of technical memos, conducting hydrologic investigations, field monitoring, data collection, jurisdictional determinations, review of model results, as well as issuing regulatory decisions and enforcement actions. He has experience encompassing a broad array of water resources having worked on projects that involved aquifer management, ground and surface water interactions, calcareous fens, peat lands, trout streams, as well as lake and river systems. His recent work has been funded by state and local governments, mining companies, and agricultural producers.

Lea, Russ

NEON, Inc.

Dr. Russ Lea is Professor Emeritus at North Carolina State University and Chief Executive Officer of the National Ecological Observatory Network (NEON). He received Ph.D.s from SUNY College of Environmental Science and Forestry and Syracuse University. His research focused on forest soil science, hardwood silviculture, and functions of forested wetlands. He has examined the impacts of logging on the functions of forested wetlands from the Upper Peninsula of Michigan to cypress-tupelo swamps of the deep South. Studies included abiotic, biotic, and organismal (neotropical songbirds, and herpetofauna) responses to clear-cut logging. He has published numerous articles on the functions and values of forested wetlands and has developed mitigation/creation strategies as well as implemented dozens of mitigation projects from salt marsh to deep cypress swamps to hardwood/pine flatwoods. Most recently he has served as the Associate Vice Chancellor for Research at North Carolina State University, Vice President for Research at the University of North Carolina, Vice President for Research at the University of South Alabama, and currently serves as Chief Executive Officer of the National Ecological Observatory Network. He has served on numerous national advisory boards for representing wetland interests and best practices, served on President Bush's blue ribbon advisory council for No Net Loss, and testified before Congress on the efficacy of wetland mitigation for offsetting no net loss. He co-founded Triangle Wetland Consultants, Inc. providing environmental assessments and environmental permitting services. He has served as principal investigator receiving hundreds of millions of dollars on grants, contracts and cooperative agreements involved with basic/applied research, technology innovation, capital construction, and developing and leading the largest ecological observatory in U.S. history (NEON, National Science Foundation). He currently serves on the boards of the Citizen Science Committee of the North Carolina Nature Research Center, Colorado Co-Labs, and Boulder Economic Council. He has consulted worldwide on the wetland issues, ecological restoration, and wetland functional losses due to development. He was a founding member of the Society of Wetland Scientists and Society of Ecological Restoration. He has served on the numerous scientific journal editorial boards, most recently for *Environmental Science and Policy*. Dr. Lea's research is currently supported by the National Science Foundation.

Lynam, Erin

Susquehanna River Basin Commission

Ms. Erin C. Lynam is an Aquatic Ecologist at the Susquehanna River Basin Commission (SRBC) in Harrisburg, Pennsylvania, where she has been working for three and a half years. She holds a B.S. in Biology from Susquehanna University (2001) and an M.S. in Aquatic Ecology from the University of North Carolina – Greensboro (2004). Ms. Lynam has spent the last nine years working in the field of aquatic ecology and natural resources management. Prior to working at SRBC, she spent three and a half years working at the New Jersey Highlands Council (Chester, New Jersey) as a Natural Resources Management Specialist where she co-authored the New Jersey Highlands Regional Master Plan, managed the Critical Habitat Program, and developed a regional stream integrity model. Before transitioning to the government sector, Ms. Lynam spent two years working in private environmental consulting, performing wetland delineations, wetlands and stream permitting with the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency, and environmental impact assessments/impact statements. In her current role at SRBC, Ms. Lynam is the lead aquatic ecologist in SRBC's Regulatory Program. She reviews water resources projects to determine the potential impact to streams and wetlands of water withdrawals in various hydrogeologic settings and across multiple of scales in the Susquehanna River Basin. She manages SRBC's Aquatic Resource Survey Program, authored SRBC's Headwaters Protection white paper, assisted in the drafting of proposed rule-making at Federal Register/Vol. 77, No. 247 for the protection of headwater streams, co-authored the SRBC's Low Flow Protection Policy, co-authored the SRBC's Morrison Cove Water Resources Availability Study, and directed the Aquatic Resources Survey Request for Qualifications and subsequent award of an agency contract. Ms. Lynam also is a member of several of SRBC's technical research and policy development teams, serving as lead ecologist. She regularly interacts with the public and the regulated community, primarily natural gas operators seeking to perform hydraulic fracturing of unconventional shale formations (Marcellus, Utica, etc) in the Susquehanna River Basin.

Machung, Laurie

New York City Department of Environmental Protection

Ms. Laurie Machung is Wetlands Program Supervisor with the New York City Department of Environmental Protection. She has been with the New York City Department of Environmental Protection (DEP) since 1998. She coordinates the Wetlands Protection Strategy for the New York City watershed which includes wetland mapping, research, monitoring, and protection programs aimed at maintaining the integrity of the city's water supply. Previously, she was a wetland soil scientist for the Illinois Natural History Survey where she gained expertise in identifying hydric conditions in a wide range of soil types. She received her M.S. from Pennsylvania State University in 1994, studying soil properties of reference and created wetlands under the advisement of Dr. Robert P. Brooks at the Penn State Cooperative Wetlands Center. She received a B.S. from Salisbury State University. She is currently a participant in the New York State Wetlands Interagency Committee and the New York City DEP's Forest Interdisciplinary Technical Team. Her current research activities include a reference wetland monitoring program, which is aimed at characterizing the landscape settings, hydrologic connectivity, conditions, and water quality functions of wetlands in New York City's unfiltered water supply watershed. She is also managing a project aimed towards improving wetland detection, mapping, and connectivity assessment using Light Detection and Ranging (LiDAR) and other remote-sensing data sources. These research activities are funded by the New York City DEP.

McCormick, Frank

USDA Forest Service Research and Development, Rocky Mountain Research Station

Dr. Frank H. McCormick is a research program manager for the Air, Water and Aquatic Environments Science Program of the U.S. Forest Service-Rocky Mountain Research Station. He holds a B.S. and M.S. in Biology from St. Louis University and a Ph..D. in zoology from the University of Oklahoma. He held a position as a research ecologist with the U.S. Environmental Protection Agency's National Exposure Research Lab in Cincinnati, Ohio where he studied watershed stressor-response relationships for use as indicators for bioassessment and biocriteria, and co-led indicator development for the Environmental Monitoring and Assessment Program (EMAP) - Surface Waters. He served as the technical advisor for Regional-EMAP Projects, U.S. EPA's Ecological Indicators Workgroup and Regional Biocriteria Program, Ohio River Valley Water Sanitation Commission (ORSANCO) Biological Water Quality Committee and Index of Biotic Integrity (IBI) Workgroup, and the Great Rivers Biocriteria Group. With U.S. Forest Service Research and Development, his research has focused on assessing the condition of streams and their responses to natural and anthropogenic disturbance to inform management and restoration of forested ecosystems. Dr. McCormick serves on the steering committees and science working groups of the Pacific Northwest Aquatic Monitoring Partnership (PNAMP), and the Southern Rockies and Great Northern Landscape Conservation Cooperatives to identify science needs, review the planned program of work, and develop the request for proposals with the oversight agencies (U.S. Fish and Wildlife Service and Bureau of Reclamation) for their annual grant program. He also serves on the steering committee of the Interior Columbia Basin Deputy Team which oversees the program of work of the federal action agencies (Bureau of Land Management, National Oceanic and Atmospheric Administration Fisheries, U.S. EPA, U.S. Fish and Wildlife Service and U.S. Forest Service) for implementation of the recommendations, standards and guidelines of the PacFish/InFish Biological Opinion (PIBO). Dr. McCormick's current research is directly funded by the U.S. Forest Service.

McDonough, Owen

University of Maryland

Dr. Owen McDonough is an affiliated Research Scientist with the University of Maryland Center for Environmental Science Chesapeake Biological Laboratory. He recently received his Ph.D. from the University of Maryland College Park for research conducted on the impacts of agricultural wetland restoration on the hydrology and ecology of adjacent temporary and perennial streams. This work was funded by the Wetland Component of the National U.S. Department of Agriculture Conservation Effects Assessment Project (CEAP). Dr. McDonough has been awarded the University of Maryland Darwin Fellowship, The Garden Club of America Wetland Scholarship, and the Chesapeake Biological Laboratory Drach-Mellody Navigator Award (co-recipient). He has participated in a multi-year International Wetland Science and Management Summer Experience where he studied approaches to wetland assessment and protection throughout Europe and the United States. Prior to his graduate work, Dr. McDonough received a B.S. in Biology from the College of William and Mary where he studied watershed science and the role of storm water best management practices on downstream sediment and nutrient loading. He has served as an Aquatic Ecology Intern with the Nature Conservancy, analyzing the influence of land use on the distribution of stream biota in the Commonwealth of Pennsylvania. His current research focuses on the protection of healthy watersheds to maintain downstream ecosystem services.

McDowell, William

University of New Hampshire

Dr. William H. McDowell is Professor of Environmental Science and former Chairperson in the Department of Natural Resources and the Environment at the University of New Hampshire, College of Life Sciences and Agriculture. He also serves as Director of the New Hampshire Water Resources Research Center. Dr. McDowell holds a B.A. in Biology from Amherst College and a Ph.D. in Aquatic Ecology from Cornell University. After two years at the University of Puerto Rico and four years at the State University of New York College at Oswego studying watershed biogeochemistry, he joined the University of New Hampshire faculty in 1989. Dr. McDowell studies contaminant and nutrient cycling in forested and urban streams at sites in New Hampshire and Puerto Rico. Dr. McDowell's teaching responsibilities include Watershed Management and Ecosystem Ecology. He currently serves as the U.S. co-chair of the National Science Foundation Long Term Ecological Research Network's International Committee, as a member of the STReam Experimental Observatory Network (STREON) advisory board for the National Ecological Observatory Network, and was a member of the Executive Committee of the Biogeosciences Section of the American Geophysical Union from 2002-2005. Dr. McDowell has served on review panels for U.S. Department of Agriculture (USDA), National Science Foundation, the European Union, Britain's National Environment Research Council (NERC) and the U.S. Fulbright Commission. He was awarded a Fulbright Fellowship in 1995-1996 to teach and conduct research in environmental sciences at Charles University, Prague, Czech Republic. He was named a prestigious University of New Hampshire Presidential Chair in 2010. Dr. McDowell's research has been funded in the past two years by the National Science Foundation, National Oceanic and Atmospheric Administration, U.S. Department of Agriculture Forest Service, and the U.S. Environmental Protection Agency.

McMahon, Thomas

Montana State University

Dr. Thomas McMahon is a Professor of Fisheries in the Department of Ecology at Montana State University. Dr. McMahon holds a Ph.D. and M.S. in Fisheries Science from the University of Arizona and a B.A. in Aquatic Biology from the University of California, Santa Barbara. Prior to joining the faculty at Montana State University in 1990, Dr. McMahon was a postdoctoral fellow with Canada Department of Fisheries and Oceans and an assistant research professor at Oregon State University's Marine Science Center; in both of these positions, he studied the effects of forest harvest on salmon populations. In his current position, Dr. McMahon teaches courses in fish and wildlife ecology and management at the undergraduate and graduate level including fish habitat management, fishery management, and fish ecology and biology. He also teaches summer courses in trout stream ecology, and developed a Research Methods course for entering graduate students in ecology. Dr. McMahon's primary research interests are applied fish ecology and management, and he has supervised 23 graduate student projects, many of which have dealt with fish movement and fish passage. He has published several articles specifically on the relationship between population dynamics and dispersal of fishes and on the connectivity of freshwater systems. Dr. McMahon has been an associate editor for the *North American Journal of Fisheries Management* and has served on several review panels, including the Center for Independent Experts and the state of California, dealing primarily with salmon and water management, and as an appointed member of the Governor's Future Fisheries Review Panel, which reviews funding proposals for fisheries habitat restoration projects for the state of Montana. In the past two years, Dr. McMahon's research has been funded by the U.S. Fish and Wildlife Service's Landscape Conservation Cooperative, and Montana Fish, Wildlife, and Parks.

Meadows, Michael

University of South Carolina

Dr. Michael E. Meadows is an Associate Professor in the Department of Civil and Environmental Engineering at the University of South Carolina. He is currently in his 33rd year on the faculty at the University of South Carolina. His educational background includes an M.S. in Environmental Engineering and Ph.D. in Civil Engineering from the University of Tennessee. As a professor, his efforts have focused on research and teaching related to water resources engineering, hydrologic systems and connections with wetlands. One notable class he teaches is the capstone senior design class. Students are divided into design teams that shadow real-world projects. Deliverables include a reasonable set of engineering drawings, an engineering report with cost estimate, and an oral presentation and defense of their design before a professional jury panel. During his time at South Carolina, Dr. Meadows has been Principal Investigator (PI) or Co-PI on 49 funded grants and contracts, mostly related to watershed hydrology. One project involved monitoring surface and subsurface waters in wetlands at the Joseph W. Jones Ecological Research Center in southwest Georgia. During field studies related to urban stormwater runoff and detention pond performance, the pond outflow was diverted through adjacent wetlands to achieve further treatment before discharge to receiving water bodies. As additional work related to wetlands, he helped a local company identify sites in Fairfield County, South Carolina as potential wetland banks; this was an unfunded synergistic activity with a professional contact. Currently, he is co-PI on a 3-year project funded by South Carolina Department of Transportation (SCDOT) that began in February 2013 and will end in December 2015. This project addresses the SCDOT need to improve the mitigation process for unavoidable impacts to reduce project implementation delays. Currently, the SCDOT is unable to forecast mitigation needs for future infrastructure projects, and mitigation planning is not considered early in the process when an infrastructure project is implemented. If the SCDOT had a tool for easily estimating future mitigation needs and access to results of research regarding current compensatory mitigation practices by other DOTs, these project delays caused by shortcomings in the compensatory mitigation planning process could be reduced. The project deliverables will be (i) a GIS-based mitigation forecasting program and (ii) a report that includes a thorough review of current practices in advanced compensatory mitigation planning. The GIS program will help in forecasting compensatory mitigation credits needed for planned infrastructure projects. The report will include a summary of current practices by other state DOTs for compensatory mitigation and journal literature that presents state-of-the-art approaches for compensatory mitigation strategies.

Meixner, Thomas

University of Arizona

Dr. Thomas Meixner is a Professor of Hydrology and Water Resources at the University of Arizona. He was an assistant Professor from 1999-2005 at the University of California Riverside when he moved to the University of Arizona in 2005 to become an Associate Professor in Hydrology and Water Resources. Professor Meixner earned a B.S. in Soils and a B.A. in History at the University of Maryland in 1992 and received his Ph.D. in Hydrology at the University of Arizona in 1999. Dr. Meixner's research is focused on watershed hydrology and biogeochemistry hydrologic controls on water quality, GIS, remote sensing, hydrochemical modeling, atmospheric chemistry, aqueous geochemistry, water quality modeling, sensitivity analysis, automatic parameter estimation, semiarid hydrology, riparian sustainability, climate change impacts on water resources, and multi-criteria analysis. Of specific interest is the intersection of hydrology and biogeochemistry, particularly how hydrologic processes play a fundamental part in controlling biogeochemical processes and fluxes at the catchment scale. Research efforts range from field investigations designed to understand controls at a mechanistic and process level to modeling studies focused on forecasting biogeochemical and water quality conditions at the catchment to basin scale, particularly in developing model calibration and uncertainty techniques that can coexist with multi-dimensional yet sparse data. His research has spanned environments as diverse as desert scrub and alpine ecosystems and from scales of single soil profiles to 10,000 square kilometer catchments. Dr. Meixner's current research is funded by the National Science Foundation, Department of Defense, and U.S. Geological Survey.

Meyer, Joseph S.

ARCADIS U.S.

Dr. Joseph S. Meyer is a Technical Expert and leader of the Surface Water Quality and Watershed Sciences discipline in the Environment Division at ARCADIS U.S. He earned a B.S. in Chemical Engineering from Lehigh University (1973) and a Ph.D. in Zoology (1986) from the University of Wyoming, and he conducted postdoctoral research on phosphorus cycling in eutrophic lakes at the Lake Research Laboratory of the Swiss Federal Institute for Water Sciences and Water Pollution Control (EAWAG/ETH) in Kastanienbaum, Switzerland (1987-1989). Dr. Meyer formerly was a Lecturer in Fisheries at Humboldt State University (1990-1993), where he conducted research on nitrogen cycling in constructed wetlands; and a Professor of Zoology at the University of Wyoming (1994-2007), where he conducted research on the bioavailability and toxicity of metals to aquatic organisms. Currently, Dr. Meyer is an Affiliated Faculty Member in the Department of Chemistry and Geochemistry at the Colorado School of Mines, where he collaborates on research projects related to the toxicity of metal mixtures and the recovery of metal-contaminated stream systems following remediation. He specializes in aqueous biogeochemistry (including nutrients and metals) and the effects of chemicals on aquatic organisms. Recent and current research/contract support has been provided by the National Institutes of Environmental Health Sciences, the Copper Development Association, the International Lead Zinc Research Organization, the Nickel Producers Environmental Research Association, Rio Tinto, and a variety of confidential business clients.

Meyer, Judith L.

University of Georgia

Dr. Judith Meyer is Professor Emeritus at the Odum School of Ecology, University of Georgia (UGA), where she served on the faculty from 1977 – 2006. She received a B.S in zoology from University of Michigan, a M.S. in marine biology from University of Hawaii, and a Ph.D. in ecology from Cornell University. Dr. Meyer's research interests center around stream ecosystems, in particular water quality and nutrient dynamics, stream food webs, headwater and urban streams, riparian zones, human impacts on stream ecosystems, and stream restoration practices. She has studied urban streams in Atlanta, blackwater rivers in Georgia, and mountain streams in the Southern Appalachians, where she led one of National Science Foundation's Long-term Ecological Research sites. Dr. Meyer's research has resulted in over 175 peer-reviewed publications. She is a former President of the Ecological Society of America and helped found the River Basin Center at UGA, where she was a Co-Director. She is a Fellow of American Association for the Advancement of Science and the Ecological Society of America. She has served on the U.S. EPA's Science Advisory Board and the Water Science and Technology Board as well as the Board on Environmental Studies and Toxicology of the National Research Council. She currently serves on the Independent Science Board of California's Delta Stewardship Council, the Technical Advisory Group for salmon recovery efforts in the San Juan Islands, the Board of the San Juan Preservation Trust, and the Scientific and Technical Advisory Committee of American Rivers. Dr. Meyer received the Award of Excellence in Benthic Science from the Society for Freshwater Science and the Naumann-Thienemann Medal for lifetime achievement from the International Society of Limnology. She currently receives no federal research grant funding.

Miller, Sarah

U.S. Army Corps of Engineers

Ms. Sarah Miller is a Research Ecologist and Fluvial Geomorphologist with the U.S Army Engineer Research and Development Center (ERDC). She holds a B.A. in Environmental Science and Engineering from Bucknell University and a M.S. in Watershed Management and Fluvial Geomorphology from Humboldt State University. Ms. Miller has 15 years experience in stream and watershed management and research, beginning with 12 years as a Research Scientist for the City of New York Department of Environmental Protection (NYCDEP) and continuing with nearly five years as a Research Ecologist for the ERDC. Starting as lead Research Scientist and Staff Fluvial Geomorphologist for NYCDEP, Ms. Miller served program, project and staff supervisory roles in design, development and implementation of the Fluvial Processes Research Program for the Catskill Mountains, New York. Her work included development and implementation of comprehensive Quality Assurance Project Plans including data collection, analysis and application protocols for measurement of channel morphology, bed mobility and fluvial dynamics of stable stream reference sites, and monitoring for determination of constructed stream restoration project performance to inform better restoration design and construction. Ms. Miller led development of regional hydraulic geometry and bankfull discharge curves for the Catskill Mountains, New York, and assisted the United States Geological Survey (USGS) to develop similar curves for New York State, including field and data analysis protocol development, field training for associated staff, and review of resultant regional curve reports for New York State hydrologic regions. Additionally, she developed, provided technical assistance for, and conducted public and professional training, volunteer monitoring programs and public outreach related to fluvial processes, stream and riparian management and restoration ecology. Ms. Miller has continued this level of coordinated, multi-disciplinary research for the past five years in her position at ERDC. She recently completed a comprehensive watershed assessment study funded by Florida Department of Transportation (FDOT) and two basic research Work Units under: the Environmental Management and Restoration Research Program (EMRRP) regarding defining spatial and temporal limits of project environmental benefits, and under the Environmental Benefits Assessment (EBA) Program regarding defining lexicon and principles for use of the reference condition in ecosystem restoration. Ms. Miller previously participated in a facilitated conceptual model development process for the Kansas City District of the U.S. Army Corps of Engineers and produced a Technical Note under EMRRP regarding identifying stability thresholds and performance standards for flexible channel lining materials in stream and slope restoration applications. Currently, Ms. Miller is providing assistance to the U.S. Army Office of the Assistant Chief of Staff for Installation Management (OACSIM) Natural and Cultural Resource Program Studies by providing targeted field and laboratory research and technical assistance for development and site opportunity assessment of Chesapeake Bay shoreline stabilization and stormwater Best Management Practices on U.S. Army Installations in support of the Annual Army Chesapeake Bay Action Plan (AACBAP). This will assist Chesapeake Bay State jurisdictions to comply with the United States Environmental Protection Agency (U.S. EPA) sediment and nutrient Total Maximum Daily Load (TMDL) for the Chesapeake Bay. Ms. Miller's work in support of the above and additional projects over the past two years has been primarily, though not exclusively, funded by OACSIM, EMRRP, Watershed Operations Technical Support (WOTS) program, Baltimore District United States Army Corps of Engineers (USACE), and FDOT.

Mitsch, William

Ohio State University

Dr. William J. Mitsch is Eminent Scholar and Director, Everglades Wetland Research Park, and Juliet C. Sproul Chair for Southwest Florida Habitat Restoration and Management at Florida Gulf Coast University. He is also Professor Emeritus of Environment and Natural Resources, The Ohio State University. Before moving to Florida in October 2012, he was at Ohio State for 27 years including 20 years as Director of the Olentangy River Wetland Research Park and 15 years as Distinguished Professor in the College of Food, Agricultural, and Environmental Sciences. Before that he taught at Illinois Institute of Technology and University of Louisville. Dr. Mitsch holds a B.S. in engineering from University of Notre Dame and an M.E. and Ph.D. in environmental engineering science and systems ecology at University of Florida. His research and teaching have focused on wetland ecology and biogeochemistry, wetland creation and restoration, ecological engineering and ecosystem restoration, and ecosystem modeling. His research over the last 2 years has been supported primarily by the National Science Foundation and the South Florida Water Management District. He has collaborated in research, teaching and service with teams in China, Korea, Denmark, Sweden, Estonia, France, Spain, Egypt, Jordan, Botswana, Costa Rica, and Brazil. Dr. Mitsch has authored or co-authored almost 600 peer-reviewed papers, editorials, chapters for proceedings of meetings, encyclopedia entries, book reviews, published abstracts, and research reports. He has authored or edited 18 books, including authoring 4 editions of the popular textbook *Wetlands*. He is editor-in-chief of the international journal *Ecological Engineering*, which he started in 1992. He served on four committees of the National Research Council, National Academy of Sciences, the U.S. EPA Science Advisory Board (SAB) and its committees; review teams for the Swedish MISTRA (Foundation for Strategic Environmental Research); and several advisory panels for Louisiana Delta and Florida Everglades restorations. In 1994-2002 he chaired a SCOPE committee on Ecological Engineering and Ecosystem Restoration based in Paris and in 1997-2000 he chaired a national committee to determine solutions to the Gulf of Mexico hypoxia. He is past-president of the Society of Wetland Scientists and was founder and first president of the American Ecological Engineering Society (AEES). He Chaired the 1992 INTECOL Wetland Conference and 2012 EcoSummit, both held in Columbus, Ohio. Dr. Mitsch's awards include two Fulbrights (University of Copenhagen, Denmark and University of Botswana, Maun Botswana), the U.S. EPA National Award for Wetland Research (1996), a Fellow of the American Association for the Advancement of Science (AAAS) (1997), Distinguished Scholar Award at The Ohio State University (1998), Theodore M. Sperry Career Award from the Society of Ecological Restoration International (2005), the Lifetime Achievement Award from the Society of Wetland Scientists (2007), an Einstein Professorship from the Chinese Academy of Sciences (2010), and a Doctorate honoris causa from University of Tartu, Estonia (2010). In August 2004 he was awarded, along with his Denmark friend Sven Erik Jørgensen, the 2004 Stockholm Water Prize by King Carl XVI Gustaf of Sweden for lifetime achievements in the modeling, management, and conservation of lakes and wetlands.

Moore, Robert Daniel

University of British Columbia

Dr. R.D. (Dan) Moore currently holds joint appointments as Professor and Chair of Forest Hydrology in the Department of Geography and Department of Forest Resources Management at the University of British Columbia (UBC), Vancouver, Canada. He received his B.Sc. (Hons) in Physical Geography (Climatology) from the University of British Columbia in 1979, and his Ph.D. in Physical Geography (Hydrology) from Canterbury University in Christchurch, New Zealand, in 1984. Prior to joining the faculty at UBC in 1999, he held positions as Assistant Professor at McGill University in Montréal (1985-1987), Hydrologist at Triton Environmental Consultants in Vancouver (1988-1989), and Assistant Professor and Associate Professor at Simon Fraser University in Burnaby, BC (1989-1999). Dr. Moore's current research addresses a range of intersecting topics in the general areas of hydrology, climatology and glaciology. Specific interests include the effects of glacier retreat on downstream hydrology, water quality and fish habitat, hydrologic response to forest disturbance and climatic variability and change, effects of riparian forest management and disturbance on water quality and fish habitat, physical processes governing stream temperature dynamics and its response to environmental change, and hydrologic processes in rain-on-snow environments. In addition to Dr. Moore's research activities, he has also been active in extension activities, particularly in relation to watershed assessment and fisheries implications of forest management. In 2010, he received the "Outstanding Achievement Award" from the Canadian Society for Hydrologic Sciences for his contributions to hydrologic research and practice in Canada. In the last two years, Dr Moore's research has been funded by the Natural Sciences and Engineering Research Council of Canada, the Pacific Climate Impacts Consortium in British Columbia and the Canadian Foundation for Climate and Atmospheric Science.

Murphy, Mark

GeoSystems Analysis, Inc.

Dr. Mark T. Murphy is Vice President and Senior Water Resources Scientist in the Tucson office of GeoSystems Analysis, Inc. His responsibilities include all aspects of the company's business performance and technical contributions in the areas of stream restoration, storm water management, and water quality. Dr. Murphy previously worked for the New Mexico Interstate Stream Commission, URS Corporation (formerly known as United Research Services) and Pacific Northwest National Laboratory. Dr. Murphy holds a Ph.D. in Geology from the Johns Hopkins University (1989), an M.S. in Geology from the University of New Mexico (1985), and a B.S. in Earth Science from the University of California, Santa Cruz (1977). Dr. Murphy was an Associate Professor at Heritage College on the Yakama Indian Nation in central Washington State (1996-1997) and Visiting Assistant Professor at Arizona State University from 1997-2000. He has been a Visiting Lecturer in Environmental Ethics at the University of Richmond in Virginia from 1997 to the present. Dr. Murphy's primary area of expertise is the physical ecology (hydrology and geomorphology) of aquatic systems, specifically how fluvial morphology and shallow groundwater dynamics combine to create habitat. Dr. Murphy has worked with municipalities and other members of the regulated community to develop methods for complying with the Clean Water Act and the Endangered Species Act, as they consider protection of ecosystems. Dr. Murphy has supported determinations of ecological flow requirements of aquatic, wetland and riparian communities, and provided surface water hydrological criteria for restoration and adaptive management plans. Dr. Murphy's research has focused on the connectivity in arid fluvial systems. He was a Principal Investigator for the Arid West Water Quality Research Project, supported by a 5.5-million dollar U.S. EPA research grant to Pima County (Tucson, AZ) to investigate the scientific applicability of nation-wide water quality standards to streams of the arid West. Dr. Murphy is a Board Member of Watershed Management Group, the City of Tucson Citizens Water Advisory Commission, and Ciudad Soil and Water Conservation District. He served on the Advisory Board of the Southwest Hydrology magazine and was a Board Member of the Arizona Hydrological Society from 2000-2002. He was also a member of New Mexico Governor Bill Richardson's panel on Forest and Watershed Health. Dr. Murphy's primary sources of funding over the last two years have been state, county, and local governments; the Walton Family Foundation; The Nature Conservancy; the U.S. Bureau of Reclamation; and U.S. EPA grants to these entities.

Neville, Helen

Trout Unlimited

Dr. Helen Neville is a biologist and member of Trout Unlimited's (TU) national science team. She has six years of experience conducting research and providing professional guidance and technical expertise for this nongovernmental freshwater conservation organization. Dr. Neville received her undergraduate degree in Biology from Brown University, an M.S. in Ecology, Behavior and Evolution from the University of California, San Diego, and her Ph.D. in Ecology, Evolution and Conservation Biology from the University of Nevada, Reno. Throughout her tenure at TU and previously at the U.S. Forest Service's Rocky Mountain Research Station she has investigated a broad range of salmonid (salmon and trout) ecological, evolutionary and applied conservation questions and is recognized and frequently consulted as a leading authority in conservation genetics and ecology. Her primary research is related to salmonid homing behavior, adaptive variability, population structure and conservation status, responses to restoration, migratory life history variation, genetic monitoring, and hybridization and invasion. She has particular expertise in population dynamics and dispersal in connected versus fragmented stream systems. She has served as a member of the Western Native Trout Initiative (particularly with the Strategic Planning Working Group and Strategic Plan Writing Team), and is a member on two Lahontan cutthroat trout Geographic Management Unit teams and the Nevada Fish Passage Working Group. She is also the TU Director and Steering Committee Chair for a large twelve-year National Fish and Wildlife Foundation Keystone Initiative for Lahontan cutthroat trout. Dr. Neville is currently funded by the Bureau of Land Management, the National Fish and Wildlife Foundation, and the U.S. Forest Service.

O'Connor, Ben

Argonne National Laboratory

Dr. Ben L. O'Connor is a hydrologist at Argonne National Laboratory where he is the lead of the Ecological and Hydrologic Modeling Team within the Environmental Science Division. Dr. O'Connor received his Ph.D. (2006) in Civil Engineering from the University of Minnesota and was a National Research Council Postdoctoral Fellow at the U.S. Geological Survey in Reston Virginia from 2006 to 2009. Dr. O'Connor's research interests lie at the intersection of hydrology and ecology, with an emphasis on quantifying physical aquatic habitat controls on ecosystem processes. Specifically, Dr. O'Connor has expertise at examining aspects of flow regimes, turbulence, mass transfer processes, and sediment transport in a variety of riverine systems and relating these physical aspects to biogeochemical processes such as whole stream metabolism and nutrient cycling. At Argonne, Dr. O'Connor's team focuses on using theoretical, numerical, and data-driven analyses to simulate ecosystems and environmental processes in response to perturbations caused by energy development. Recent studies have involved the examination of flow variation impacts on downstream geomorphology and ecology related to hydropower operations, assessing impacts to ephemeral streams and groundwater related to utility-scale solar energy development, and developing remote sensing applications for environmental monitoring programs targeted for arid regions affected by renewable energy development. Funding for these recent projects is supported by U.S. Department of Interior (Bureau of Land Management, Bureau of Reclamation, and National Park Service), U.S. Department of Energy (Energy Efficiency and Renewable Energy), and Western Area Power Administration.

Packee, Edmond

Travis/Peterson Environmental Consulting, Inc.

Dr. Edmond C. Packee Jr. is a Senior Scientist with Travis/Peterson Environmental Consulting, Inc. He has been employed with Travis/Peterson Environmental Consulting, Inc. in Fairbanks, Alaska since 1998. Dr. Packee holds a B.A. in Biological Sciences, B.A. in History, and M.S. in Mine Reclamation Science from the University of Alaska Fairbanks and earned his Ph.D. in Mining at the University of Pretoria, South Africa. Dr Packee is a Certified Professional Soil Scientist (CPSSc.), Certified Professional in Erosion and Sediment Control (CPESC), Certified Erosion, Sediment, and Storm Inspector (CESSWI), and a Certified Professional in Storm Water Quality (CPSWQ). He is a Master Instructor for the Alaska Certified Erosion and Sediment Control Lead (AK-CESCL) program. Dr. Packee's professional expertise includes: mine reclamation and environmental compliance, erosion and sediment control at industrial facilities and construction projects, wetlands delineation in periglacial and arctic environments, hydrology and water quality of surface and subsurface waters, and Section 404 of the Clean Water Act. Dr. Packee is an advocate of private property rights especially with respect to Section 404 of the Clean Water Act. He submitted an amicus brief to the Supreme Court in support of John Rapanos, was the wetland consultant for Great Northwest, Inc., a small construction company, which successfully sued to overturn Section 404 jurisdiction in Alaska District Court, and was the wetland consultant for the Fairbanks North Star Borough which unsuccessfully sued to the U.S. Supreme Court in an effort to provide judicial review of jurisdictional determinations following administrative appeals to U.S. Army Corps of Engineers. Additionally, in his capacity of Senior Scientist at Travis/Peterson Environmental Consulting, Inc., Dr. Packee has appealed Section 404 jurisdiction based on hydrologic connection 10 times resulting in jurisdictional determinations being returned to the Alaska District for further evaluation eight times. Dr. Packee was a peer reviewer of the Alaska Regional Supplement to the 1987 Corps of Engineers wetlands delineation manual and was appointed to represent the construction community, both private and public, to the Alaska Department of Environmental Conservation task force on Anti-Degradation policy. Neither Dr. Packee nor the firm with which he is employed has received public funding for research from local, State, or Federal sources within the past 2 years.

Palmer, Margaret

University of Maryland

Dr. Margaret Palmer is Director of the National Socio-Environmental Synthesis Center (www.SESYNC.org). In addition, she is a Professor at the University of Maryland in the Department of Entomology and in the Center for Environmental Science (UMCES). She holds a B.S. in Biology from Emory University (1977) and an M.S. and Ph.D. (1983) in Coastal Oceanography from the University of South Carolina. After a number of years conducting research in estuarine systems, she moved her research focus to freshwater streams and watershed restoration ecology. She is well known for her work at the interface of hydrology and benthic stream ecology as well as restoration science. Current ongoing research in her laboratory focuses on: 1) the influence of wetland restoration on nearby intermittent streams and their connectivity to perennial streams; 2) the flux of carbon between intermittent and perennial streams, as well as the source and complexity of the carbon and microbial communities associated with the carbon; and 3) developing quantitative relationships between stream ecosystem services and the biophysical drivers. Having worked on streams, rivers, and estuaries for more than 27 years and having led scientific projects at national and international levels, she has more than 150 scientific publications and multiple ongoing collaborative research grants. Among others, she has published in the journals *Science*, *Nature*, and *Ecological Applications*. She has been an invited speaker in numerous and diverse settings including international ecological science conferences, environmental ethics symposia, and restoration ecology workshops. Dr. Palmer has been honored as an AAAS Fellow, an Aldo Leopold Leadership Fellow, a Lilly Fellow, an elected fellow of the Ecological Society of America, and has received a University System of Maryland Board of Regent's Faculty Award of Excellence. Dr. Palmer also devotes a significant amount of time to working with local watershed groups and county managers in the Chesapeake Bay region. Dr. Palmer has led a number of large scale projects that engaged scientists, researchers, and natural resource managers in the co-development of science priorities and project approaches. These include lead investigator of the National River Restoration Science Synthesis which resulted in the development of the first comprehensive database on river and stream restoration in the U.S. Dr. Palmer has served on the Scientific Advisory Panel for the Restoration of the Colorado River below Glen Canyon Dam and currently serves on the Integrated Science Advisory Panel for the Missouri River Restoration Program. Service on these restoration panels required deep understanding of complex scientific issues and advisory roles. Dr. Palmer also has significant scientific leadership experience, having served as a Program Director of Ecology at the National Science Foundation for two years, as Director of the University of Maryland's Chesapeake Biological Laboratory (120 staff) for six years, and as the current Director of SESYNC. SESYNC is a 10-year, NSF-funded national center that serves the external scholarly community in their pursuit of solutions to pressing problems at the intersection of the environment and people. Dr. Palmer's recent research support has come from the U.S. EPA, National Science Foundation, and Sao Paulo Research Foundation.

Parkhurst, Benjamin

HAF, Inc.

Dr. Benjamin Parkhurst is the owner and the principal employee of an environmental consulting company, HAF, Inc., located in Centennial, Wyoming. Dr. Parkhurst holds a Ph.D. in Zoology & Physiology, University of Wyoming (1987), an M.S. in Fishery Biology, Michigan State University (1971), and a B.S. in Fishery Biology, Michigan State University (1969). His work has been in the field of aquatic ecology and environmental consulting, studying the relationships between aquatic organisms and their environment, for over 40 years. He has worked throughout the United States as well as in several foreign countries. Clients have included the U.S. Environmental Protection Agency (EPA), U.S. Department of Energy (DOE), U.S. Nuclear Regulatory Agency, the Water Environment Research Foundation (WERF), mining companies, energy companies, municipalities, and law firms. Much of this work has been in the arid U.S. West, where extreme variability in hydrology is a major stressor affecting aquatic life. He has conducted numerous studies on the effects of a wide variety of environmental impacts on fish, invertebrates, aquatic plants, and aquatic habitat. Stressors studied include nutrients, toxic chemicals, low dissolved oxygen concentrations, salinity, acidity, municipal waste water discharges, mining wastes, habitat quality, and sedimentation. He has developed and evaluated state-of-the-science protocols for evaluating the ecological risks of nutrients, toxic chemicals, effluents, and physical stressors to aquatic life. He has conducted numerous field studies as well as laboratory toxicity tests and in situ bioassays studies on fish and invertebrates. Dr. Parkhurst has been a principal investigator for a number of WERF research projects dealing with ecological risk assessment, nutrients, and whole effluent toxicity, as well as a DOE research project on ecological risk assessment. Dr. Parkhurst was a member of the Scientific Advisory Group for the Arid West Water Quality Research Project (AWWQRP) from 1999 - 2007. The AWWQRP was a research project funded by the EPA to Pima County Wastewater Management Department, Tucson, AZ, to study water quality issues unique to the arid West. For WERF, Dr. Parkhurst also was a member of a research advisory committee dealing with whole effluent toxicity issues. Dr. Parkhurst has participated in and provided comments on the development of water quality standards for the protection of aquatic life in a number of states and for the EPA. Dr. Parkhurst recently retired from full-time work, but is still conducting some long-term aquatic ecology studies for several energy and mining companies in the arid West.

Passarella, Kenneth

Passarella & Associates, Inc.

Mr. Kenneth Passarella is the President and Principal Ecologist for Passarella & Associates, Inc., an ecological consulting firm. Mr. Passarella holds an M.S. in Marine Science (1990) from the University of South Florida and a B.A. in Marine Science with a Minor in Botany (1984) from Jacksonville University. He is a Certified Professional Wetland Scientist by the Society of Wetland Scientists, a Certified Senior Ecologist by the Ecological Society of America, and a Certified Wetland Delineator by the U.S. Army Corps of Engineers. His disciplinary and specific areas of expertise include wetlands ecology and regulation. Mr. Passarella's expertise includes ecological assessments, state and federal wetland jurisdictional determinations, wetland mitigation, wetland mitigation banking management, design, permitting, and construction, and environmental project management. He has over twenty-five years of experience and has regularly presented and written on these subjects. Mr. Passarella routinely prepares wetland jurisdictional determinations, wetland mitigation designs, vegetation mappings, and assists clients with federal and state permitting, county zoning issues, and consultation under the Endangered Species Act. Mr. Passarella is a member of the U.S. Fish and Wildlife Service Peninsular Florida Landscape Conservation Cooperative Steering Committee and a U.S. Fish and Wildlife Service South Atlantic Landscape Conservation Cooperative Consulting Team Member. He is also a member of numerous professional associations, including the National Association of Environmental Professionals, the Florida Association of Environmental Professionals (of which he has served as President of the State Board, served on the State Board of Directors, and served as President of Southwest Florida Chapter), the Society of Wetland Scientists, and the Ecological Society of America. Mr. Passarella has received no public funding for research within the past two years.

Patten, Duncan

Montana State University

Dr. Duncan Patten is Director of the Montana Water Center and Research Professor with the Department of Land Resources and Environmental Sciences at Montana State University, Bozeman. He is also Professor Emeritus in the School of Life Sciences and past director of the Center for Environmental Studies at Arizona State University. Dr. Patten holds an A.B. degree from Amherst College, an M.S. from the University of Massachusetts at Amherst, and a Ph.D. from Duke University. His research interests include arid and mountain ecosystems, especially the understanding of ecological processes of riparian, wetland, and riverine ecosystems. Dr. Patten's research has also involved developing conceptual models for and studies of ecosystem indicators of watershed and National Park ecosystem condition, and he served on a Washington State Academy of Sciences committee reviewing indicators of Puget Sound health and recovery. He was Senior Scientist of the Bureau of Reclamations Glen Canyon Environmental Studies, overseeing the research program evaluating effects of operations of Glen Canyon Dam on the Colorado River riverine ecosystem. Dr. Patten was founding president of the Arizona Riparian Council, president of the Society of Wetland Scientists, and Business Manager of the Ecological Society of America. He is a Fellow of the American Association for the Advancement of Science and the Ecological Society of America. He has been a member of the National Academy of Sciences/National Research Council (NAS/NRC) Board on Environmental Studies and Toxicology; the NAS/NRC Commission on Geoscience, Environment and Resources, and eleven NAS/NRC committees, chairing two. He has also served on the National Science Foundation Environmental Biology/Ecological Sciences Panel. He participated in the development of the Heinz Center's "State of the Nation's Ecosystems" project and he is presently a member of the U.S. EPA Science Advisory Board. Dr. Patten's recent research support has come from the U.S. Geological Survey through the Montana Water Center.

Payne, Frederick

ARCADIS G&M, Inc.

Dr. Frederick C. Payne is Senior Vice President and Director, Technology Development at ARCADIS G&M, Inc. He is also a faculty affiliate in Civil and Environmental Engineering, Center for Contaminant Hydrology at Colorado State University. Dr. Payne holds a B.S. in Biology and Botany from Michigan State University and M.S. and Ph.D. degrees in Limnology from Michigan State University. After completing graduate studies in 1982, Dr. Payne founded Midwest Water Resource Management, a consultancy in surface and groundwater restoration that later became MWR, Inc. In 1999, he joined ARCADIS, where he currently serves as a senior scientist for large-scale aquifer characterization and remediation throughout the United States, with a focus on deep aquifers in the Western United States. At MWR, Dr. Payne led the development of soil vapor extraction and aquifer sparging technologies that were granted six U.S. patents between 1988 and 1994. From 1989 through 1996, he served on U.S. EPA, U.S. Department of Energy and American Petroleum Institute technology development panels for soil vapor extraction, aquifer sparging and related technologies for soil and groundwater restoration. In 2005, he co-authored *In Situ Remediation Engineering* and was the lead author for *Remediation Hydraulics* in 2008. Dr. Payne has served on the Interstate Technology and Regulatory Council since 2004 and is currently part of the DNAPL Site Characterization Team. He was invited to the 2011 and 2012 Federal Remediation Technology Roundtables as a subject matter expert in the characterization and restoration of large-scale groundwater contamination sites. He was also invited to the University Consortium for Field Focused Groundwater Contamination Research forums in 2011 and 2012, to lecture on restoration of large, dilute plumes and management of contaminant transport across the groundwater – surface water interface. Dr. Payne's work on sequestration of hydrophobic organic contaminants in surface water has been funded by the Lovinklaan Foundation; his work on contaminated groundwater restoration and his work as a faculty affiliate in the Colorado State University Center for Contaminant Hydrology is funded through ARCADIS.

Petty, Todd

West Virginia University

Dr. J. Todd Petty is a Professor of Aquatic Sciences at the West Virginia University (WVU) Davis College of Agriculture, Forestry & Design and serves as Associate Director of the WVU Environmental Research Center. Dr. Petty also directs the WVU EnvironMentors program, which matches graduate student mentors with high school students conducting environmental research projects, and he directs the WVU Peace Corps Masters International program in Sustainable Forestry. Dr. Petty holds a B.A. in Biology from the University of Virginia (1990), and an M.S. and Ph.D. in Forest Resources from the University of Georgia (1994, 1998). After a one-year post-doctoral fellowship, he joined the WVU faculty in 2000, where he teaches courses in stream ecology, fisheries management, and fish and wildlife population dynamics. Dr. Petty studies watershed scale processes influencing stream fish and invertebrate assemblages. Through this research, Dr. Petty's lab has developed an analytical and decision making process that can be used to target high priority areas for protection and restoration of fish diversity. This research is being applied to efficient restoration of abandoned mine lands, culvert replacement programs, acid precipitation remediation, and strategic use of off-site mitigation requirements in the mountain- top mining districts of West Virginia. Dr. Petty currently serves as an Associate Editor for the *Transactions of the American Fisheries Society*. He previously served as a member of the U.S. EPA Science Advisory Board panel on the effects of mountaintop removal mining. He also has served on the review board for the Fulbright Specialist Program. Dr. Petty has served on numerous state and regional advisory committees related to acid mine drainage remediation, stream restoration, nutrient criteria, anti-degradation policy, water quality standards, and trout stream designation. Dr. Petty's research has been funded in recent years by the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, the U.S. Geological Survey, the West Virginia Department of Environmental Protection, the U.S. Office of Surface Mining, and the Appalachian Research Initiative in Environmental Sciences (ARIES).

Phelan, Jennifer N.

RTI International

Dr. Jennifer Phelan is a senior research ecologist at Research Triangle Institute (RTI) International and adjunct faculty at the Department of Forestry and Environmental Resources at North Carolina State University (NCSU). Dr. Phelan holds a B.Sc. of Environmental Sciences and a Ph.D. of Forest Ecology from the University of British Columbia in Canada. After completing her degree, she spent six years as a research associate followed by a research assistant professor at NCSU, where her research and courses concentrated on soils and nutrient cycling in forested ecosystems. Dr. Phelan is currently employed at RTI International, based in North Carolina. Since joining RTI in 2008, she has been involved in a wide variety of research projects focused on ecological flows, stream classification, atmospheric pollution, climate change, ecosystem services, and environmental risk assessments. Dr. Phelan is currently an active contributor to the North Carolina Ecological Flows Science Advisory Board (NC EFSAB) and a co-chair of the National Atmospheric Deposition Program (NADP) – Critical Loads of Atmospheric Deposition (CLAD) Scientific Committee. She has co-authored a book chapter and has published peer-reviewed articles in *Ecology*, *Oecologia*, *Plant and Soil*, *Forest Ecology and Management* and *The Canadian Journal of Forest Research*. At RTI, Dr. Jennifer Phelan is currently conducting several projects related to stream hydrology. In support of the determination of ecological flows for North Carolina, Dr. Phelan led a project sponsored by Environmental Defense Fund (EDF) to evaluate the biological fidelity of North Carolina's stream classification system. Comprehensive analyses demonstrated that there were flaws in the classification system; the classification system could not reliably be applied beyond U.S. Geological Survey stream gages nor was it consistent using different periods of climate record. Dr. Phelan is now leading a project to develop a stream classification system for the NC EFSAB (sponsored by EDF) based on physiographic and biological assemblage attributes. She is also leading an internally-funded research project to develop a novel methodology to establish flow alteration – biological response relationships and associated ecological flow "thresholds" for ecological flow determinations at individual stream and regional levels. This methodology uses a "space-for-time" analysis approach that pairs modeled hydrology with the biological condition of biota at monitoring stations.

Pierce, Robert

Wetland Training Institute, Inc.

Dr. Robert Pierce has been President and a principal instructor with the Wetland Training Institute, Inc. (WTI) for over two decades. WTI conducts training courses throughout the nation and on the Internet on water resource-related topics and develops publications for professionals working in the field. He conducts postgraduate training courses on wetland and waters delineation, functional assessment, ecology, policy, hydrology and soils. Among courses taught are those specifically requested by governmental agencies, including Indiana, Kentucky, Montana, Nebraska, New Mexico, Texas, Utah, Wyoming and the U. S. Navy, Federal Energy Regulatory Commission, and Federal Highway Administration. In addition, Dr. Pierce provides water resource-related consulting services for individuals and organizations with projects seeking federal, state, and local regulatory approvals. He received his Ph.D. and M.A. in Zoology from Miami University and a B.S. in Biology from the University of Dayton. He has published on such varied topics as fish physiology and ecology, contaminant mobility and biomagnification, stream transmission losses, wetland science, and regulatory policy. Dr. Pierce has extensive experience in applied hydrology, including conducting numerous, quantitative analyses of surface and/or ground water movement, sources, interactions and connectivity for purposes of Clean Water Act (CWA) jurisdictional consideration and mitigation plans. He has evaluated and related precipitation and stream gauge records to surface and ground-water driven systems and teaches both basic and advanced hydrology courses related to CWA jurisdiction. His primary field of academic interest is ecology, and he maintains a continued practice in wetland and stream functional assessment, migratory behavior, and biotic connectivity (nexus) between systems and wetlands as it applies to both the abstract and real world application of CWA jurisdictional concepts. Dr. Pierce served as an external advisor on wetland and water connectivity for Washington State Department of Transportation in 2005-2006. He previously worked for the U.S. Army Corps of Engineers. From 1982 through 1988, he was a member of the Regulatory Branch at Corps Headquarters. During that period, Dr. Pierce had lead technical and policy responsibilities in a number of program areas including nationwide and regional general permits, the National Environmental Policy Act, solid waste, mitigation, Clean Water Act Section 404(b)(l) Guidelines, ocean dumping, artificial reefs, isolated waters and interstate commerce, water dependency, wetland jurisdictional determinations, and wetland valuation. In addition, Dr. Pierce was the principal technical monitor for three Corps research programs: one dealing with wetlands and the others with contaminated dredged material. He also served as the Corps Headquarters representative to the committee that developed the National Wetland Plant List, and led the Corps negotiating team that developed the Unified Federal Wetland Delineation Method (1989 Manual). He was the designated point of contact for the Corps and the Assistant Secretary of the Army (Civil Works) with the U.S. Environmental Protection Agency wetland research program and between the Army and the Tennessee Valley Authority on biomonitoring to assess aquatic resources and toxic contaminants of aquatic systems. During his tenure with the North Atlantic Division of the Corps, he developed interpretive protocols for assessing the impact of discharging contaminated dredged material into the Hudson River and Atlantic Ocean and assessed the impact of highway construction on the striped bass population in the Hudson River.

Pitt, Amber

Clemson University

Dr. Amber L. Pitt is a Post-doctoral Research Fellow in the School of Agricultural, Forest, and Environmental Sciences at Clemson University. Dr. Pitt received her B.A. in Zoology from the University of Vermont and her M.S. and Ph.D., both in Interdisciplinary Ecology, from the University of Florida. Dr. Pitt is broadly trained in aquatic ecology with an emphasis on amphibian and reptile ecology. She investigated the impacts of habitat degradation on river turtle communities and hellbender salamander populations. Her current research investigates the biological and hydrological connectivity of isolated wetlands with traditional navigable water bodies in the southeastern United States. Dr. Pitt's research has informed conservation and management decisions in a variety of states within the U.S. Dr. Pitt's most recent research has been funded by the U.S. EPA and U.S. Forest Service.

Pruitt, Bruce

U.S. Army Corps of Engineers, ERDC

Dr. Bruce Pruitt is a research ecologist with the U.S. Army Corps of Engineers (USACE), Engineer Research and Development Center (ERDC). He holds an M.S. in Biology from Georgia State University and a Ph.D. in ecology from the University of Georgia. His areas of expertise include: Aquatic Ecosystem Restoration, Salt Marsh Ecology and Restoration, Hillslope and Watershed Hydrology, Biogeochemistry and Water Quality, and Sedimentology and Soil Science. His professional affiliations include: Professional Hydrologist, Professional Wetland Scientist, and all course work and experience leading to certification as a Professional Soil Scientist. Dr. Pruitt has 36 cumulative years of professional level working experience in the private and public sectors. He has led studies related to ecology, hydrology, and water quality in a diversity of aquatic ecosystems including streams, wetlands, lakes, estuaries, and salt marshes across numerous physiographies. He has conducted intensive investigations and developed functional assessment procedures for numerous aquatic ecosystems and received several awards for his efforts. Dr. Pruitt provided design, construction oversight, and 3-years of monitoring on application of dredge material on a Georgia salt marsh. He has also provided design, monitoring and model application on salt marsh import/export studies including discharge, water and sediment quantity and quality. Since 1989, Dr. Pruitt served as instructor and facilitator in numerous applied training courses including federal wetland delineation, functional assessment, and fluvial geomorphology. Dr. Pruitt has served on several regional and national teams/groups including the U.S.EPA - Science and Ecosystem Support Division (SESD) Design Team, the U.S. Geological Survey Turbidity Workgroup, the Ecological Resource Team, the Fluvial Geomorphology Group, and the Groundwater/Surface Water Interaction Workgroup. In addition, he served on the New York City Department of Environmental Protection Watershed Advisory Board. Currently, Dr. Pruitt serves on the U.S.EPA Office of Research and Development's Broad River Sedimentation Project. While at the USACE, Dr. Pruitt received funding from both the Environmental Management and Restoration Research Program (EMRRP) and the Wetland Regulatory Assistance Program (WRAP).

Pullman, G. Douglas

Aquest Corporation

Dr. G. Douglas Pullman is President of Aquest Corporation, Flint Michigan. In this capacity he is responsible for lake studies, lake vegetation management planning, aquatic ecosystem management research and evaluation, product development, market research, and technical services for lake managers and lake management authorities. Dr. Pullman holds an A.B. in Zoology from Indiana University and an M.S. and Ph.D. in Limnology from Michigan State University. Previously, Dr. Pullman held positions as Director of Research and Technical Services for Cygnet Enterprises, Inc. in Linden, Michigan and Aquatic Biologist for the Dow Gardens, an agency of the Herbert H. and Grace A. Dow Foundation in Midland, Michigan. Dr. Pullman's scientific and professional interests focus on: management of lake, reservoir, and wetland ecosystems and plant communities; watershed management; aquatic botany; ecology and productivity of aquatic plant communities; herbicide tolerance; beach management; and blue-green algae management. Dr. Pullman maintains close collaborative associations with university researchers and industry research and development units. He is the author of numerous scientific publications and has been involved in many research projects and technology advancements over the past 30 years. These include: development of methods to suppress potentially toxic blue-green algae populations with low rate applications of algaecides; discovery of novel herbicide and algaecide combinations for the effective management of herbicide resistant plants; discovery of public health water sample contamination sources and mechanisms at swimming beaches, discovery of exotic invasive plant species; discovery of herbicide tolerance mechanisms; and development of monitoring and evaluation methods for lakes, ponds, and reservoirs. Dr. Pullman was co-author and legislative committee member for several Michigan invasive species bills and he is a member of numerous professional associations, including the Aquatic Plant Management Society, North American Lake Management Society, and Michigan Aquatic Managers Association. Dr. Pullman is a consultant, technical representative, or marketing and development team member for a number of corporations, and recently received a research funding through a grant from Lonza.

Pyron, Mark

Ball State University

Dr. Mark Pyron is a Professor of Biology in the Aquatic Biology and Fisheries Center at Ball State University. He has a Ph.D. in Zoology from the University of Oklahoma, an M.S. in Biological Sciences from University of North Texas, and a B.S. in Zoology from the University of Wisconsin. Following his education he spent two years in post-doctoral research positions at Colorado State University and University of Illinois. His expertise is in large river ecology, snail ecology, and evolutionary ecology of fishes. Dr. Pyron's current research directions include river restoration, use of side-scan sonar for quantifying fish habitat, long-term fish assemblages of large rivers, and niche breadth of aquatic assemblages. Dr. Pyron is currently a member of the Ohio River Basin Fish Habitat Partnership Steering Committee, and is vice-president of the Indiana Chapter of the American Fisheries Society, and past president of the Indiana Water Resources Association. He is currently an associate editor for two peer-reviewed journals, *American Midland Naturalist* and *Southwestern Naturalist*. Dr. Pyron's recent funding has been from United States Geological Survey, National Fish Habitat Partnership, Indiana Academy of Science, and Triad Mining, Inc.

Rains, Mark

University of South Florida

Dr. Mark Rains is an Associate Professor of Ecohydrology in the Department of Geology at the University of South Florida, the President of Coshow Environmental, Inc. in Temple Terrace, Florida. He is an ecohydrologist with a B.A. in Ecology, Behavior, and Evolution (University of California, San Diego 1990), an M.S. in Forestry from the University of Washington (1994), and a Ph.D. in Hydrologic Sciences from the University of California, Davis (2002). He has nearly 20 years' experience in the public and private sectors in the science, policy, and management of wetlands and rivers, including extensive experience in the functional assessment, restoration, and management of degraded wetlands and rivers. Dr. Rains is the Associate Editor for *Aquatic Ecology* for the *Journal of the American Water Resources Association*. Dr. Rains' research focuses on local and landscape-scale hydrological connectivity, geological controls on physical and chemical hydrology, the roles that hydrological processes play in governing ecosystem structure and function, and the role that science plays in informing water-related law and policy. He pursues these efforts in a variety of surface-water and shallow-groundwater environments, primarily depressional wetlands, headwater streams and mainstem rivers, and mangroves and lagoons. Dr. Rains' current research addresses the following general themes: how depressional wetlands respond to hydrologic perturbation in west-central Florida, particularly due to groundwater pumping; the controls on streamflow and stream water temperatures and nutrient concentrations in salmon-bearing headwater streams in south-central Alaska; the role that groundwater discharge might play in the flux of water and phosphorous from the subsurface into the oligohaline ecotone in the coastal Everglades; and how scientific principles can be used to create expert systems for wetland conservation planning and prioritization. He serves in a leadership role in the Florida Coastal Everglades Long-Term Ecological Research Program (FCE LTER) and is co-principal investigator (co-PI) on the Tampa Bay Urban Long-Term Research Area (Tampa Bay ULTRA). Dr. Rains has additional service-related interests in sustainable water-resources development in poor, rural communities in Latin America and the Caribbean Basin, including an ongoing project to provide rooftop rainwater collection and point-of-use filtration to poor, rural communities on the northeast coast of the Dominican Republic. He also has extensive experience in consensus building at the intersection of science and policy in wetland regulatory programs, including work related to the science underlying the definition of "waters of the U.S." subject to regulation under the Clean Water Act. For the latter, he was awarded U.S. Environmental Protection Agency Scientific and Technological Achievement Awards in both 2007 and 2009. In late 2011 and early 2012, Dr. Rains served as a peer reviewer of an earlier draft of U.S. EPA report then entitled "Connectivity of Streams and Wetlands to Downstream Waters – A Review and Synthesis of the Scientific Evidence," which culminated in a peer-review workshop in Washington, DC and a subsequent follow-up report to the EPA authors. Overall, Dr. Rains has been PI or co-PI on proposals successfully funded by a variety of public- and private-sector agencies and entities, including recent and/or ongoing funding from the National Science Foundation, the Alaska Department of Fish and Game, the Alaska Sustainable Salmon Fund, the Tampa Bay Estuary Program, St. Lucie County (Florida); and a consortium of Rotary groups. He has been the author or co-author of 28 peer-reviewed papers and one peer-reviewed edited volume, 35 technical reports, and six peer reviewed teaching tools, and has been the presenter or co-presenter of 72 posters/presentations delivered at a variety of regional, national, and international meetings and university colloquia.

Ray, Chittaranjan

University of Hawaii at Manoa

Dr. Chittaranjan Ray is a Professor in Department of Civil and Environmental Engineering at the University of Hawaii, and Interim Director of the University's Water Resources Research Center. He is also the Chief Environmental Engineer of the Applied Research Laboratory (of the U.S. Navy) at the University of Hawaii. He is a fellow of the American Society of Civil Engineers. Dr. Ray holds a Ph.D. in Civil Engineering from the University of Illinois at Urbana Champaign. Prior to pursuing his doctoral degree, Dr. Ray worked as a staff engineer in the firm of Arcadis Geraghty & Miller where he gained significant experience in remedial investigation of contaminated sites. He was also employed as a scientist at the Illinois State Water Survey prior to taking an academic job with the University of Hawaii in 1997. Dr. Ray's research focuses on the impacts of chemicals and pathogens on ground water surface water, water quality assessment, and surface and ground water interaction in the context of water supply. Dr. Ray advises the Hawaii Department of Agriculture on the leachability of new chemicals for their registration of the state of Hawaii. He has worked extensively in the Pacific Rim countries on topics such as river bank filtration for water supply and development of low-cost water treatment systems for emergency use during disasters. He has received competitive funding from the Department of Defense, U.S. Department of Agriculture, U.S. EPA, National Science Foundation, North Atlantic Treaty Organization (NATO), U.S. Agency for International Development, and other agencies for various water and environmental related projects. Currently, he is on the editorial board of the journal *Clean Technology and Environmental Policy* and he serves as an Associate Editor of the journal *Irrigation and Drainage Engineering*.

Reaney, Simeon

Durham University

Dr. Simeon M. Reaney is a Lecturer in the Department of Geography and a researcher in the Institute of Hazard, Risk, and Resilience at Durham University, UK. Dr. Reaney holds a B.Sc. in Geography from King's College London and a Ph.D. from the University of Leeds in modeling hydrological connectivity in semi-arid systems. After working for two years on hydrological modeling, water quality and climate change at an environmental consultancy firm (based in the University of Leeds), he moved to Durham University to research risk based approaches to non-point source pollution from rural systems. This post-doctoral position was followed by a five year Research Councils United Kingdom (RCUK) research fellowship the in the Department of Geography and Institute of Hazard, Risk and Resilience. Since October 2012, he has been a lecturer in the Geography department. His research interests are in hydrological dynamics and the simulation of integrated environmental processes. Dr. Reaney has developed a series of simulation models that utilize a range of techniques including physically based, fully distributed, hydrological and water quality simulation models (CRUM3), agent based approaches to tracing flow pathways and connectivity (hydroAgents) and the application of risk-based approaches to non-point source pollution (SCIMAP). These models have been applied in temperate and semi-arid environments by both Dr. Reaney and external bodies in the UK, including the Environment Agency, many local River Trusts, and the UK water industry. In the last two years, Dr. Reaney's research has been funded by research councils (National Environment Research Council, Engineering and Physical Sciences Research Council, Economic and Social Research Council) and government bodies (Environment Agency, Natural England and Defra). He is currently working on the Defra Demonstration Test Catchments project in the River Eden, Cumbria on characterizing the hydrological and biogeochemistry including the dominant pathways from sources of pollution to the rivers and lakes. He is working on the National Environment Research Council's Environmental Virtual Observatory (pilot) on implementing environmental simulation models as web services in the cloud and the application of models to investigate biogeochemical and hydrological processes at the national scale. Dr. Reaney also works on the SCIMAP diffuse pollution risk management tool which calculates both the spatial pattern of non-point source pollution risk and the pattern of hydrological connectivity in fine spatial detail across landscapes. SCIMAP has been developed through working with stakeholders including the Scottish Environmental Protection Agency, Environment Agency for England and Wales, and local rivers trusts.

Reckhow, Kenneth

Cardno ENTRIX

Dr. Kenneth Reckhow is a Technical Director with Cardno ENTRIX and Professor Emeritus at Duke University in the Nicholas School of the Environment. During his 30 year tenure as a Professor at Duke, Dr. Reckhow taught courses in water quality management and modeling, environmental decision analysis, and environmental statistics; his research at Duke was also focused on those topics. From 1996 to 2004, Dr. Reckhow served as Director of the University of North Carolina Water Resources Research Institute. He is a past president of the National Institutes for Water Resources, past President of the North American Lake Management Society, and past Chair of the North Carolina Sedimentation Control Commission. Dr. Reckhow has served as Chair of the National Academy of Sciences Panel on the U.S. EPA Total Maximum Daily Load Program (2001), as a member of the National Academy of Sciences Panel on the U.S. Geological Survey National Water Quality Assessment (2000-01), as a member of the National Academy of Sciences Panel on Restoration of the Everglades Ecosystem (2003-05), and as Chair of the National Academy of Sciences Panel on Chesapeake Bay Restoration. In 2010-11, he served on the U.S. EPA Science Advisory Board Nutrient Criteria Review Panel. He has published two books and over 100 papers, principally on water quality modeling, monitoring, and pollutant loading analysis, with a focus on uncertainty, risk, and decision analysis. Much of his work has emphasized nutrients and eutrophication. In addition, he has taught several short courses on water quality modeling and monitoring design, and he has written eight technical guidance manuals on these topics. He is currently serving, or has previously served, on the editorial boards of *Journal of the American Water Resources Association*, *Water Resources Research*, *Water Resources Bulletin*, *Lake and Reservoir Management*, *Journal of Environmental Statistics*, *Urban Ecosystems*, and *Risk Analysis*. Dr. Reckhow has a B.S. in Engineering Physics from Cornell University and a Ph.D. from Harvard University in Environmental Systems Analysis. Dr. Reckhow has recently received support for his work from the U.S. EPA EcoRisk Program, the Upper Neuse River Basin Association (North Carolina), and the South Atlantic Landscape Conservation Cooperative.

Reddy, K. Ramesh

University of Florida

Dr. K. Ramesh Reddy is a Graduate Research Professor (distinguished professorship) and Chair of Soil and Water Science Department (SWSD) at the University of Florida (UF). He holds a B.S. and M.S from AP Agricultural University-India and a Ph.D. from the Louisiana State University, Baton Rouge, Louisiana. Dr. Reddy's research addresses problems in science and technology in topical areas of biogeochemistry with emphasis on macro-elemental cycling; soil and water quality; wetlands and aquatic ecosystem restoration; carbon sequestration and greenhouse gases. His early research as a biogeochemist focused on the fate of nutrients in flooded rice paddies, followed by applying biogeochemical principles to study nutrient/contaminant behavior in various ecosystems including freshwater and coastal wetlands, and lakes, as related to water quality and eutrophication. Dr. Reddy developed an interdisciplinary program on biogeochemistry of wetlands and aquatic systems through the Wetland Biogeochemistry Laboratory (WBL) established within the SWSD. Since its establishment in 1987, the WBL has provided a home for graduate students for various disciplines, and post-doctoral associates and visiting scientists. His research group effectively integrated biogeochemical principles to address these issues. This led to interdisciplinary work with scientists from various disciplines including ecology, biology, limnology, and engineering. Dr. Reddy published more than 350 refereed journal articles and book chapters, edited five books, and author of one text book. Dr. Reddy has served on numerous advisory committees at state, national, and international levels. He served on the U. S. National Committee on Soil Science, National Academy of Sciences. He currently serves on U. S. National Committee – Everglades Restoration, National Academy of Sciences. Dr. Reddy also served on a U.S. Environmental Protection Agency, Science Advisory Board Panel. He was invited to participate in a think tank meeting hosted by the National Environment Research Council and the Global Environmental Research Committee of the Royal Society, London, England. Dr. Reddy currently serves as wetland consultant with the International Atomic Energy Commission. Dr. Reddy's select awards and honors include: UF-Graduate Research Professor, UF-Research Foundation Professor (1999-2002; 2009-2012); Doctoral Dissertation Advisory /Mentoring Award (2005); Fellow, World Innovation Foundation; Environmental Quality Research Award, American Society of Agronomy (2002); Sigma Xi Senior Faculty Research Award (2002); Soil Science Applied Research Award, Soil Science Society of America (2001); Fellow, American Association for the Advancement of Science; Fellow - Soil Science Society of America (1988); Fellow - American Society of Agronomy (1988); Gama Sigma Delta International Award (2006). Dr. Reddy's recent funding is from U.S. Department of Interior, National Science Foundation, St. Johns River Water Management District, Florida Department of Agriculture and Consumer Services, South Florida Water Management District.

Remo, Jonathan

Southern Illinois University

Dr. Jonathan Remo is an Assistant Professor in the Department of Geography and Environmental Resources at Southern Illinois University, Carbondale. He holds a B.S. in Geology from Edinboro University of Pennsylvania, an M.S. in Geology from West Virginia University, and a Ph.D. in Environmental Resources and Policy from Southern Illinois University. Dr. Remo is an interdisciplinary scientist and licensed geologist who has more than 15 years of professional and academic experience in hydrology, fluvial geomorphology, hydrogeology, and river and floodplain management. His professional experience includes more than four years of consulting work as a hydrogeologist working on surface and groundwater investigation and remediation projects managed by the U.S. Army Corps of Engineers. Dr. Remo's research relevant to hydrologic connectivity includes two projects funded by the National Science Foundation to assess historic changes in hydrology, geomorphology, and flood conveyance along the Mississippi River and its main tributaries. His current areas of research also include hydraulic and physical habitat modeling, large-river-floodplain connectivity, and hydrologic/stream permanence studies in mixed land use basins in the Midwest. Dr. Remo's research and professional projects have been supported by the National Science Foundation, U.S. Geological Survey, the U.S. Army Corps of Engineers, the Federal Emergency Management Agency, Illinois Emergency Management Agency, Resources for the Future, and the National Commission of Energy Policy. Dr. Remo has served on one state and two federal advisory committees and participated in the National Academies Committee on Levees and National Flood Insurance Program Meetings. At the state level he has participated in the Illinois Geologic Mapping Advisory Committee. At the Federal level he has served on the Federal Emergency Management Agency's Hazus-MH Higher Education Resources Consortium (HERC) and the Central United States Hazus-MH Best Practice Committee (Hazus is a standardized methodology for models that estimate potential losses from floods, earthquakes and hurricanes).

Richardson, John

University of British Columbia

Dr. John S. Richardson is Professor and Head of the Department of Forest and Conservation Sciences at the University of British Columbia (UBC), where he is also director of the Stream and Riparian Research Laboratory. He received his Ph.D. from UBC in the Department of Zoology's Ecology Group. His research addresses questions of ecology and management of streams, riparian areas and with a broad interest in aquatic biology, and particularly stream-riparian interactions. Dr. Richardson has published over 170 articles, more than 124 of them in international, peer-reviewed journals. He has published extensively on headwater streams and was part of the Rain and Nadeau symposium on connectivity of headwaters held in 2006. In late 2011 and early 2012, he served as peer reviewer for an earlier U.S. EPA draft report on the connectivity of headwater and wetlands to downstream waters. More than 34 graduate students, 11 post-doctoral fellows and 10 research assistants, as well as dozens of undergraduate honors students, have studied with his research team. He is on the editorial board of the *Canadian Journal of Fisheries and Aquatic Sciences* and was previously an Associate Editor of the *Journal of Applied Ecology* and *Journal of the North American Benthological Society*. He is a member of several teams addressing endangered species recovery and other government-appointed panels. He has been a member of several granting panels. He is an associate member of the Peter Wall Institute for Advanced Studies, the Department of Zoology, and the Biodiversity Research Centre at UBC. He teaches courses in Freshwater Ecosystems, Wildlife Biology, and Fluvial Ecohydrology at UBC. In the past several years Dr. Richardson's primary sources of research funding have come from the Natural Resources and Engineering Research Council (Canada), Canadian Wildlife Federation, Pacific Institute for Climate Solutions, and the Government of British Columbia.

Rodewald, Amanda

Cornell University

Dr. Amanda Rodewald is Director of Conservation Science at the Cornell Lab of Ornithology and Associate Professor, Department of Natural Resources at Cornell University. Until 2013, she was Professor of Wildlife Ecology in the School of Environment and Natural Resources at The Ohio State University. She holds a B.S. in Wildlife Biology from The University of Montana, an M.S. in Zoology from The University of Arkansas, and a Ph.D. in Ecology from The Pennsylvania State University. Dr. Rodewald's research program seeks a mechanistic understanding of the responses of animal communities to human activities and global change, which requires her to work at multiple spatial scales and across multiple levels of biological organization. As such, her research touches on a variety of sub-disciplines, including conservation biology, landscape ecology, population demography, community ecology, behavioral ecology, and ecological restoration. Her current work focuses on understanding (1) how community organization and species interactions are affected by land use change, invasive species, altered disturbance regimes, and anthropogenic resource subsidies, (2) socioecological drivers of avian population, community, and landscape dynamics, (3) modified selective environments in human-dominated systems, and (4) population and community responses of forest birds to land use change in the U.S. and South America. Dr. Rodewald consistently extends research findings to managers, decision-makers, and private individuals in the U.S. and Neotropics. She serves her professional societies and university by serving on governance councils, advisory boards, and committees, and was recently a Committee on Institutional Cooperation (CIC) Academic Leadership Fellow. Dr. Rodewald also contributes to national and state-level environmental decision-making processes in her ad-hoc advisory and panel roles with National Science Foundation (NSF), U.S. Department of Agriculture Forest Service, U.S. Fish and Wildlife Service (USFWS), U.S. Environmental Protection Agency Science Advisory Board, Ohio Department of Natural Resources, and North American Bird Conservation Initiatives. Over the last decade, her research has been funded by NSF, USFWS, Ohio Department of Natural Resources, National Council for Air and Stream Improvement, National Fish and Wildlife Foundation, American Association for the Advancement of Science, The Nature Conservancy, Ohio Agricultural and Research Development Center, Cleveland Metropark Zoo, and Ohio Ornithological Society. Dr. Rodewald’s current research is supported by grants from NSF, USFWS and the Ohio Department of Natural Resources.

Rosi-Marshall, Emma

Cary Institute of Ecosystem Studies

Dr. Emma J. Rosi-Marshall is an Associate Scientist at the Cary institute of Ecosystem Studies. She holds a Ph.D. and M.S. from the University of Georgia and a B.S. from the University of Michigan. Previously, Dr. Rosi-Marshall held a position as an Assistant Professor in the Departments of Biology and Natural Science, Loyola University of Chicago. Dr. Rosi-Marshall conducts research on factors that control and influence ecosystem function in human-dominated ecosystems. Her research focuses on aspects of human modifications to freshwater ecosystems such as land use change and restoration, widespread agriculture and associated crop byproducts, urbanization, and the release of novel contaminants, and hydrologic modifications associated with large dams. Her research spans a diversity of ecosystems from small streams to large rivers and has been conducted in rivers throughout much of the U.S. She employs diverse methods to explore ecological processes including biogeochemistry, production ecology, food webs, carbon cycling and the effects of emerging contaminants on ecosystem processes. Dr. Rosi-Marshall has received competitive grants from the National Science Foundation (NSF), the U.S. Geological Survey (USGS), and the U.S. Department of Agriculture (USDA) and has published findings from these studies in diverse national and international scientific journals. These grants have supported her research on the effects of crop byproducts on aquatic ecosystems (NSF), carbon budgets and energy flow in food webs of the Grand Canyon (USGS), nutrient uptake in large rivers (NSF) and the influence of forest age on nutrient cycling and metabolism of headwater streams (USDA). Rosi-Marshall is also a Co-Investigator on the Baltimore Ecosystem Study Long-term Ecological Research Site (NSF) where she is exploring the influence of emerging contaminants on aquatic ecosystem function. She serves on the editorial board of Ecosystems and has served as a reviewer for NSF, USDA and for numerous national and international scientific journals.

Rudnick, Deborah

Bainbridge Island Watershed Council

Dr. Deborah Rudnick is an ecologist with the Bainbridge Island Watershed Council. She holds a Ph.D. in Environmental Science, Policy and Management from the University of California at Berkeley and a B.S. in Ecology and Evolutionary Biology from Brown University. Dr. Rudnick has fifteen years of professional experience in stream and wetland ecology and ecological risk assessment. She has worked for a variety of private, non-profit, and government institutions and agencies across a range of ecosystems in both research and natural resource management positions. She has extensive experience designing and implementing research in freshwater and estuarine ecosystems using a range of approaches including experimental mesocosms, population sampling, and stable isotope analysis. For the past eight years, she worked as an environmental risk assessor for a national consulting firm as a senior scientist and risk assessor. Simultaneous to this work, she has chaired the Bainbridge Island Watershed Council and runs education and outreach events as well as coordinating the Council's salmon monitoring and salmon conservation programs. Dr. Rudnick's experience with advisory boards includes two years as chair of the California Mitten Crab Management Task Force, a multi-agency, multi-institution working group that served to coordinate and respond to the Chinese mitten crab invasion of freshwater and estuarine habitats, and ongoing involvement with the National Mitten Crab Task Force. She currently serves as vice-chair of the Bainbridge Island Environmental Technical Advisory Committee that advises City staff and Council on environmental programs including the local shoreline and critical areas ordinances. She has no current external research funding.

Russell, Periann

North Carolina Division of Water Quality

Ms. Periann Russell is a Geomorphologist with the North Carolina Division of Water Quality (DWQ). Since 2005, she has been researching the formation and dynamics of headwater streams as the lead scientist and coordinator of the DWQ intermittent and perennial headwater streams mapping project. The project involves using field-based data observations in conjunction with GIS spatial analysis to develop predictive headwater stream models. She was co-awarded the 2011 Environmental Excellence award for her stream modeling research along with her wetland modeling research partners. Ms. Russell is the editor of the North Carolina Intermittent and Perennial Stream Identification Methodology Manual and is an instructor for the North Carolina Stream Identification certification classes. In January 2013, Ms. Russell was promoted to Environmental Program Consultant where she will continue oversight of headwater spatial modeling and mapping as well as manage the North Carolina Watershed Assessment Team tasked with special projects related to stream restoration activities in North Carolina. For the last seven years, Ms. Russell has served on the North Carolina Stream Mapping Advisory Committee. From 1998-2005, Ms. Russell worked as an instructor and research assistant with North Carolina State University. Her research involved investigating near-bed fluvial processes and their effect on freshwater mussel populations. She also taught undergraduate and graduate level classes in Geology and Geomorphology. Before returning to North Carolina in 1998, Ms. Russell worked for the Siskiyou National Forest in southwest Oregon, the Confederated Tribes of Warm Springs in central Oregon, and Weyerhauser Co. in Federal Way, Washington. Her work has focused on fluvial and hillslope processes with respect to changes in land cover and land use and the effects on aquatic habitat. She received her B.S. in Geology from University of North Carollina - Charlotte, and M.S. in Geomorphology from Oregon State University in Corvallis, Oregon. Ms. Russell's recent work has been funded by the North Carolina Department of Transportation and the Federal Highway Administration.

Schmid, James

Schmid and Company, Inc. Consulting Ecologists

Dr. James A. Schmid has been president of Schmid & Company, Inc., Consulting Ecologists, in Media, Pennsylvania since 1980. He holds a B.A. from Columbia University M.A. and Ph.D. degrees from the University of Chicago, where he specialized in biogeography and plant ecology. As Assistant Professor he taught environmental science and ecology in the Department of Biological Sciences at Columbia University, and subsequently he served as Senior Ecologist for several environmental consulting firms. He is certified as a Senior Ecologist by the Ecological Society of America, as a Professional Wetland Scientist by the Society of Wetland Scientists, and as a Wetland Delineator by the Army Corps of Engineers. Dr. Schmid's experience spans a broad range of environmental consulting projects, particularly wetland analyses and environmental impact statements. His firm's diverse clientele includes major corporations, utilities, developers of residential, industrial, and commercial real estate, land brokers, banks, government agencies, attorneys, engineers, architects, watershed associations, conservation groups, and individuals. He has served as an expert witness at countless public hearings on proposed construction, as well as in the state and federal courts. Dr. Schmid's principal expertise and professional interest lie in resource inventory, impact assessment, and preservation, and in the design and establishment of functioning ecosystems in the form of new wetlands, reclaimed landfills, and other vegetated spaces. Dr. Schmid licensed the first major wetland mitigation bank in New Jersey. His projects represent 21% of the successful wetland mitigations in New Jersey found in the field by the U.S. Fish and Wildlife Service when that agency examined all Corps of Engineers Clean Water Act Section 404 permits issued statewide during the period 1985-1992, and all his projects were deemed fully successful. He routinely delineates wetlands using state and federal guidelines. Dr. Schmid has written nine books on urban vegetation and on the flora of the mid Atlantic states. He has served on the Standing Committee on Environmental Education for the Association of American Geographers and has contributed reviews to the *Geographical Review* and to *Ecology*. He has served on the Boards of Professional Certification of the Ecological Society of America and of the Society of Wetland Scientists. He has peer reviewed grant proposals submitted to the National Science Foundation, the U.S. Department of State, and the National Geographic Society.

Schweisberg, Matthew

Wetland Strategies and Solutions

Mr. Matthew Schweisberg is the principal of Wetland Strategies and Solutions, LLC. He provides policy, regulatory, scientific, and technical advice and assistance to clients seeking to navigate regulatory issues related to wetlands, streams, and other aquatic resources. Mr. Schweisberg is a retired federal wetlands ecologist and wildlife biologist with over three decades of experience in the Clean Water Act Section 404 (dredge and fill) Program. He has over 25 years of experience in the practical/applied field of accomplishing wetland and stream restoration within the confines of science, technical practicability, available funds, multiple regulatory programs, and politics. He spent more than 32 years with the U. S. Environmental Protection Agency at both its Headquarters office in Washington, D.C. and New England Region office in Boston, Massachusetts. Prior to retiring from federal service, he served concurrently as Chief of the New England Region's Wetlands Protection Program, as Senior Mediator with the Region's Alternative Dispute Resolution Program, and as the Agency's representative on the International Joint Commission's International St. Croix River Watershed Board. Mr. Schweisberg received his B.S. in Wildlife Management from the University of Maine, and is a certified as a Professional Wetland Scientist with the Society of Wetland Scientists Professional Certification Program. He served as Secretary General of the Society of Wetland Scientists, and currently sits on the Board of Directors for the Massachusetts Association of Conservation Commissions. In addition, as the Principal of Essential Conflict Resolution Services, LLC, he provides expert dispute resolution and facilitation services to small and large companies; law firms; federal and state agencies; municipalities; and non-governmental organizations. Mr. Schweisberg is well versed in all aspects of alternative dispute resolution. He has mediated large public policy and environmental cases for the U.S. EPA.

Sharpley, Andrew N.

University of Arkansas

Dr. Andrew Sharpley joined the Department of Crop, Soil and Environmental Sciences, University of Arkansas, Fayetteville in 2006. He is Director of the Arkansas Discovery Farm Program, Chair of the Division of Agriculture's Environmental Task Force and Associate Director of the Watershed Research and Education Center. He received a B.Sc. from the University of North Wales, United Kingdom in 1973 and a Ph.D. from Massey University, New Zealand in 1977, and spent 25 years with the U.S. Department of Agriculture/Agricultural Research Service (USDA-ARS) in Oklahoma and then Pennsylvania. His research investigates the cycling of phosphorus in soil-plant-water systems in relation to soil productivity and water quality and includes the management of animal manures, fertilizers, and crop residues. He also evaluates the role of stream and river sediments in modifying phosphorus transport, response of receiving lakes and reservoirs, and the legacies of past land management on these responses. He developed decision tools for use by agricultural field staff to identify sensitive areas of the landscape and to target management alternatives and remedial measures to reduce risk of nutrient loss from farms; these tools are widely accepted by U.S. EPA, Natural Resource Conservation Service (NRCS), and the Comprehensive Nutrient Management Planning Strategy. He works closely with producers, farmers, and action agencies to disseminate and apply his research findings. He is the Editor-in-Chief of the Soil Science Society of America, Environmental Issues and Perspectives Editor for the *Journal of Environmental Quality*, Fellow of the American Society of Agronomy and Soil Science Society of America and received their Applied Soil Science and Environmental Quality Research Awards and received USDA's Secretary's Honor and Technology Transfer Award for his contribution to developing simple risk assessment tools for use by farmers and action agencies. In 2008 Dr. Sharpley was inducted into the USDA-ARS Hall of Fame, and in 2012 he received the Christopher Columbus Foundation Agriscience Award. Dr. Sharpley served on National Academy of Science's Committee on "Causes and Management of Coastal Eutrophication;" USDA-Cooperative State Research, Education, and Extension Service (CSREES)-EPA "National Livestock Curriculum Project;" and EPA Science Advisory Board panels on "Hypoxia in the Northern Gulf of Mexico," "Review of Empirical Approaches for Nutrient Criteria Derivation," and "Review of EPA's draft Approaches for Deriving Numeric Nutrient Criteria for Florida's Estuaries, Coastal Waters, and Southern Inland Flowing Waters." During the last two years, he received funding from: USDA-NRCS as part of the Mississippi River Basin Initiative; state Section 319 grants; EPA Region 6, Section 319 grants; competitively awarded USGS Section 104(G) grants; and the Walton Family Foundation to assess on farm conservation efficiencies and nutrient functioning along the fluvial continuum.

Slattery, Michael

Texas Christian University

Dr. Michael C. Slattery is Director of the Institute for Environmental Studies and Professor in the School of Geology, Energy, and the Environment at Texas Christian University. Originally from South Africa, he is an internationally-trained geographer and environmental scientist: he holds a B.A. (Honors) from the University of Witwatersrand, Johannesburg, M.Sc. from the University of Toronto, Canada, and D.Phil from the University of Oxford, England. He has written more than 80 scientific articles and has published three editions of his book *Contemporary Environmental Issues*. His research focuses on the dynamics of fluvial systems, particularly human impact to coastal plain rivers and sediment pathways. He recently completed a terrestrial laser scanning study on high-energy, steep headwater channels in the cloud forests of Costa Rica. In 2007, he testified before the U.S. Congress on mercury contamination from coal-fired power plants and he serves on the editorial board of the *Annals of the Association of American Geographers* and on the executive research boards of the Texas Institute and the Botanical Research Institute of Texas. Since 2008 he has been the lead scientist on the TCU-Oxford-Nextera Energy Resources Wind Research Initiative, a five-year, $4.9 million research grant focused on the environmental, socio-economic, and carbon impacts of building large-scale wind farms in Texas and Iowa. The project involves coordinating research across several universities and government research labs addressing complex and pressing policy-related questions, such as can birds and bats and wind farms coexist, who really benefits economically from building such facilities, and what sort of ancillary services are required to back up wind installations? Dr. Slattery has worked in diverse landscapes ranging from the Namib Desert in southern Africa to the cloud forests of Costa Rica. He helped establish a research station and several biodiversity and conservation programs in Costa Rica, including a Green Macaw Protection Initiative. He has been awarded the Dean's Research Award at both institutions at which he has taught. He teaches courses on the environment, soils, hydrology, and climate.

Snodgrass, Joel W.

Towson University

Dr. Joel W. Snodgrass holds a B.S. in biology (Guilford College), M.S. in zoology (University of Central Florida), and Ph.D. in ecology (University of Georgia). Following his PhD work Dr. Snodgrass was a Postdoctoral Associate at Rutgers University before joining the faculty at Towson University in 1999. He is currently a Professor and Chairperson in the Department of Biological Science and previously co-directed the Master's of Biology Program from 2002 until fall 2011. Dr. Snodgrass' current research interests include use of GIS to quantify patterns of aquatic habitat fragmentation and the effects of aquatic habitat fragmentation on the evolution and ecology of aquatic vertebrate populations. His laboratory investigates: the effects of landscape change on the ecology of streams and freshwater wetlands using analyses of pollutant levels (trace elements and nitrogen) in water, sediments and tissues; surveys of stream and wetland geomorphology and community structure; and analyses of stream fish and pond breeding amphibian life histories. Dr. Snodgrass has published more than 60 papers and book chapters and has served in editorial positions for The *Maryland Naturalist*, *Copeia*, and *Wetlands*. The United States Geological Survey, the National Science Foundation, and the National Aeronautic and Space Administration have funded Dr. Snodgrass' research.

Stanford, Jack

University of Montana

Dr. Jack Stanford is the Director of the Flathead Lake Biological Station (since 1980) and is the Jessie M. Bierman Professor of Ecology at the University of Montana (since 1986). He holds a Ph.D. in Limnology from the University of Utah, and an M.S. in Limnology and a B.S. in Fisheries Science from Colorado State University. The Flathead Lake Biological Station (FLBS) is a multidisciplinary research and education center with 8 resident faculty and 40 staff members, including graduate students and postdoctoral scholars, with an annual budget currently exceeding $4M from competitive grants, mostly from the National Science Foundation (NSF), the National Air and Space Administration (NASA)and private foundations. He has graduated 13 PhD and 28 MS students. Professor Stanford is most noted for his long-term studies in the Flathead River-Lake Ecosystem in Montana and British Columbia (covering 18,200 square kilometers) that demonstrated the 4 dimensional nature of rivers, the ecological connectivity of aquatic systems, and food web cascades caused by introduction of nonnative species. In 1999, Dr. Stanford began extensive work on a suite of observatory salmon rivers in Kamchatka, Argentina, Alaska, and British Columbia; the research focuses on cross-site comparisons of the salmon and steelhead life histories and effects of marine nutrient subsidies on floodplain ecology. Dr. Stanford teaches field ecology for undergraduates at FLBS every summer, a very popular, outdoor course. He has served on many national and international science review panels and editorial boards concerning the ecology and conservation of rivers and salmonid fishes. He was elected a Fellow of the American Association for Advancement of Science in 2000. In 2004 Professor Stanford received the Award of Excellence of the Society for Freshwater Science, and in 2011 he received the Lifetime Achievement Award from the International Society for River Science. He is author or co-author of 173 refereed publications and of 14 books and monographs. His most frequently cited papers include: Stanford, J. A. and A. R. Gaufin. 1974. Hyporheic communities of two Montana rivers. Science 185:700–702; Ellis, B. K. and J. A. Stanford. 1982. Comparative photoheterotrophy, chemoheterotrophy and photolithotrophy in a eutrophic reservoir and an oligotrophic lake. Limnology and Oceanography 27(3):440–454; Stanford, J. A., and J. V. Ward. 1988. The hyporheic habitat of river ecosystems. Nature 335:64–66; Stanford, J. A., J. V. Ward, W. J. Liss, C. A. Frissell, R. N. Williams, J. A. Lichatowich and C. C. Coutant. 1996. A general protocol for restoration of regulated rivers. River Research and Applications. 12:391–413. This is the most cited paper published to date in this journal. Tardiff, S. E. and J. A. Stanford. 1998. Grizzly bear digging: Effects on subalpine meadow plants in relation to mineral nitrogen availability. Ecology 70(7):2219–2228. Stanford, J. A., M. S. Lorang and F. R. Hauer. 2005. The shifting habitat mosaic of river ecosystems. Plenary Lecture. Proceedings of the International Society for Theoretical and Applied Limnology. 29(1):123–136. Ellis, B. K., J. A. Stanford, D. Goodman, C. P. Stafford, D. L. Gustafson, D. A. Beauchamp, D. W. Chess, J. A. Craft, M. A. Deleray and B. S. Hansen. 2011. Long-term effects of a trophic cascade in a large lake ecosystem. Proceedings of the National Academy of Sciences USA 108(3):1070–1075.

Stevens, Lawrence

Museum of Northern Arizona

Dr. Lawrence Stevens is an evolutionary ecologist and presently serves as the Curator of Ecology and Conservation at the Museum of Northern Arizona (MNA), and the Program Coordinator for the Springs Stewardship Institute of MNA (www.springstewardship.org). He also is the senior ecologist for Grand Canyon Wildlands Council (GCWC), Inc. in Flagstaff. Originally from Cleveland, he received his B.A. from Prescott College in 1974, and his M.S. (1985) and Ph.D. in Zoology (1989) from Northern Arizona University. He is a long-time Colorado River guide, and served as Ecologist for Grand Canyon National Park (1988-1994), and Information Analyst for the Bureau of Reclamation. He has conducted extensive research on southwestern biogeography, conservation ecology, endangered and non-native species biology, as well as springs, riverine, wetlands, and dam ecology and management. He has written more than 70 scientific peer-reviewed articles, three books, and numerous popular articles on water-related resources and management in the Southwest. His recently completed co-authored book on the ecology and conservation of North American springs is widely recognized, and he is presently working on a sequel on springs stewardship. He has served GCWC as the Glen Canyon Dam Adaptive Management Work Group conservation representative since 2004, supporting integrated, rigorous scientific solutions to adaptive management challenges for the Colorado River ecosystem. Dr. Stevens lives in Flagstaff, Arizona.

Strudley, Mark

National Weather Service

Dr. Mark Strudley is a Service Hydrologist with the U.S. National Weather Service. He provides hydrologic decision support services to emergency managers, water resource engineers and planners, the media, and the general public. This position marries hydrologic and hydraulic simulations, gaging data management and interpretation, and coordination and communication with user communities. Dr. Strudley is an expert in hydrology, geomorphology, and sediment transport, and has spent many years in the private and public sector conducting research and performing assessments related to habitat restoration, water supply management, and riverine processes. Prior to his work with the Weather Service and the private sector as a consulting hydrologist/geomorphologist, Dr. Strudley worked on developing new automated model parameter estimation tools as a research hydrologist with the U.S. Department of Agriculture Agricultural Research Service in Fort Collins, Colorado. Dr. Strudley received his Ph.D. in Earth and Ocean Sciences from the Nicholas School of the Environment at Duke University where he focused on geomorphology and sediment transport. He previously received a B.Sc. in Geology from the University of California at Davis with an emphasis on geochemistry and fluvial geomorphology. Dr. Strudley currently serves as an Implementation Planning Team member for the National Oceanic and Atmospheric Administration (NOAA) Habitat Blueprint Project, and is involved with ongoing research and restoration projects involving floodplain and abandoned gravel pit reclamation/restoration, debris flow triggers and operational warning applications, and 2D hydrologic modeling and forecasting.

Sullivan, Mazeika

The Ohio State University

Dr. Mazeika Sullivan is an Assistant Professor of Aquatic-Riparian Ecology at The Ohio State University. He received a B.A. in Anthropology from Dartmouth College (1995), and his M.S. in Biology (2000) and Ph.D. in Natural Resources (2004) from the University of Vermont. Dr. Sullivan's research addresses the ecology and conservation of aquatic-riparian ecosystems, where he draws on stream ecology, fluvial geomorphology, trophic ecology, and landscape ecology to address both basic and applied questions. Unified by the theme of ecosystem-scale dynamics, his principal research activities focus on: (1) ecogeomorphology (linkages between fluvial geomorphology, hydrology, and the ecology of stream/river ecosystems), (2) aquatic-terrestrial linkages (including carbon and energy exchanges, trophic ecology, and aquatic-terrestrial contaminant fluxes), and (3) watershed landscape ecology (with a focus on riverine landscape dynamics and how river-watershed ecosystems are linked by patterns and processes operating at multiple spatial scales). Dr. Sullivan's recent research has been funded by several sources, including the National Science Foundation, Ohio Division of Natural Resources, Ohio State University Office of International Affairs, and Ohio Agricultural Research and Development Center.

Sweeney, Bernard

Stroud Water Research Center

Dr. Bernard W. Sweeney is Director, President, and Senior Research Scientist at the Stroud Water Research Center, an independent research institution focused on stream and river ecology, located in Pennsylvania. He is also Vice-President of the Asociacion Centro de Investigacion Stroud, a non-profit Costa Rican corporation established to facilitate research and educational programs related to tropical stream ecology. He has an adjunct Professor appointment at the University of Pennsylvania. Dr. Sweeney holds a B.S. in Biology from Delaware Valley College of Science and Agriculture, Pennsylvania, and a Ph.D. in Biology from the University of Pennsylvania. He has published on the following topics: the role of water quality monitoring in conservation, population and community ecology of temperate and tropical aquatic invertebrates, pollution assessment in temperate and tropical streams using macroinvertebrates, the role of streamside forests in the structure and function of stream and river ecosystems, factors affecting the growth and survivorship of trees in riparian forests, the effects of global warming on stream ecosystems, genetic variation and gene flow among populations of stream insects, DNA barcoding of aquatic macroinvertebrates, the effects of diel and seasonal temperature change on aquatic insect populations, bioenergetics and secondary production of aquatic insects, and the bioassay of toxic materials in aquatic systems. He received the 2003 “National Award of Excellence in Conservation” from the U.S. Department of Agriculture Natural Resource Conservation Service for his research and work on the restoration of streams and their riparian corridors. In 2006, he received the “Lifetime Achievement Award” from the Chesapeake Bay Foundation and the “Margaret Douglas National Medal” from the Garden Club of America for achievement in conservation education. He was appointed in 2008 to co-lead the Freshwater section of the International DNA Barcode for Life project. He is past president of the Society for Freshwater Science, is currently Co-Chairman of the Society’s Taxonomic Certification Program and the Strategic Planning Committee for the journal, and received the Society’s Distinguished Service Award in 2010. He was elected an honorary member of the Garden Club of America in 2010 for his work on riparian forest restoration. He also serves on the board of directors for the Georgia Farm Foundation (currently President) and as an advisor on the Brandywine Conservancy’s Environmental Committee. He was a member of the U.S. EPA Science Advisory Board Panel on Mountain Top Mining in 2009 and 2010. He is co-principal investigator on two recent grants from the National Fish and Wildlife Foundation.

Tank, Jennifer

University of Notre Dame

Dr. Jennifer Tank is the Ludmilla F., Stephen J., and Robert T. Galla Professor of Biological Sciences at the University of Notre Dame. She is also the Director of the Notre Dame Linked Experimental Ecosystem Facility (ND-LEEF). Dr. Tank holds a B.S. In Zoology from Michigan State University, and an M.S. and Ph.D. from Virginia Polytechnic Institute and State University in Ecology. She spent two years as a post-doctoral researcher on the first Lotic Intersite Nitrogen eXperiment (LINXI) led by Dr. Pat Mulholland at Oak Ridge National Lab. She joined the faculty in the Department of Biological Sciences at the University of Notre Dame in 2000. Dr. Tank studies the cycling of nutrients in stream and rivers systems with a focus on the restoration of ecosystem function in impacted systems. It is her goal to translate this research to inform effective management of streams and rivers. Dr. Tank also leads a multidisciplinary group of researchers examining the effect of agricultural land use on freshwater as a co-PI on the Notre Dame Environmental Change Initiative (ND-ECI). She also actively collaborates with The Nature Conservancy (TNC) on assessing strategies to improve the health and nutrient removal efficiency of streams draining cropland in the agricultural Midwest by restoring floodplain connectivity. Dr. Tank has served as an advisor to several government agencies focused on environmental issues, including the advisory board for the North American Carbon Program (NACP). She also served on the advisory board for the National Center for Ecological Analysis and Synthesis (NCEAS) and is a member of the Editorial Advisory Board for the journal Biogeochemistry. She is the most recent recipient of the University of Notre Dame’s James A. Burns Award for Excellence in Graduate Education and has also been selected as a Leopold Leadership Fellow of the Woods Institute at Stanford University in 2013. Dr. Tank's research has been funded in recent years by the National Science Foundation, the U.S. Department of Agriculture, the U.S. Fish and Wildlife Service, and the Nature Conservancy.

Thomas, Steven

University of Nebraska

Dr. Steven Thomas is an Associate Professor in the School of Natural Resources at the University of Nebraska. He holds a Ph.D. in Aquatic Ecology from Idaho Sate University, an M.S. in Zoology from the University of Wyoming, and a B.S. in Botany from the University of New Hampshire. Dr. Thomas' research focuses on the functional attributes of stream ecosystems, the influence of community composition on these processes, and how ecosystem and evolutionary processes interact. Much of his research focuses on the transport dynamics of various ecological entities (e.g. fine organic particles, nitrogen, and phosphorus) and the potential for this transport to longitudinally link ecosystems. More recently, his research has expanded to consider community and evolutionary topics and to understand the functional consequences of management activities (e.g. land use, stream bank restoration). Examples of past and current research activities include quantifying the transport dynamics of fine organic particles in streams, investigating whether the cycling of nitrogen and phosphorus is coupled in stream ecosystems, and examining links between hydrology, community structure and ecosystem processes in streams. Dr. Thomas' research is nested within the broader intellectual pursuit of understanding landscape integration across spatial and temporal scales. Dr. Thomas came to the University of Nebraska as an Assistant Professor of Stream Ecology in January 2006 and earned Associate Professor in 2012. Previously, he was a postdoctoral fellow at Cornell University and Virginia Tech and worked as a research hydrologist in the private sector. He has taught at the graduate and undergraduate levels in biology, water science, limnology, the use of stable isotopes in ecology, among other topics. Dr. Thomas' research has recently been funded by the National Science Foundation, the Nebraska Environmental Trust, and the Nebraska Department of Environmental Quality.

Tiedemann, Robert

University of Idaho

Dr. Robert B. Tiedemann is a member of the adjunct faculty of the University of Idaho, Center for Ecohydraulic Research. He is a practicing professional and a principal of Ecological Design, Inc., providing environmental and ecological consulting services throughout the Pacific Northwest. He is also one of the founders and a principal of Integrated Watershed Solutions, Inc., a 501(c) 3 non-profit corporation that imagines, designs, and builds projects to conserve water, improve water quality, and construct wetlands at the scale of watersheds. Dr. Tiedemann earned his B.S. in environmental science from The College of Agriculture and Environmental Science, Rutgers University; M.S. in aquatic resources and Ph.D. in riparian and wetland ecology from The Graduate School, Rutgers University. He is a program graduate of the Environmental Management Institute, University of Southern California – School of Public Administration. His academic interests include disturbances to riparian environments and their impacts to functions and services. Several publications are in progress from his dissertation titled "The Ecology, Effect of Dams, and Restoration of the Black Cottonwood (Populus trichocarpa T. & G.) Forest Community in the Intermountain West". Dr. Tiedemann recently developed curriculum for and taught the graduate level course CE504 River Restoration and is presently developing a series of professional development courses for the College of Engineering at the University of Idaho. He has served as both a Member and as Chairman of special panels of the National Academy of Science, Transportation Research Board. Dr. Tiedemann is a Certified Professional Wetland Scientist (Society of Wetland Scientists No. 000702), a Certified Wetland Delineator (U.S. Army Corps of Engineers April 15, 1994), a Certified Fisheries Scientist (American Fisheries Society No. 1,717), a Certified Wildlife Biologist (The Wildlife Society December 10, 1986), and a Certified NPDES BMP Designer (Idaho Transportation Department 1996). He has recently applied for a National Fish and Wildlife Foundation grant for a project that will engage the public as citizen scientists in identifying and locating weedy species in riparian environments by use of modern techniques including GPS, social media, and "crowd sourcing". Anticipated results include a comprehensive data base, interactive map, and K-12 curriculum.

Tompkins, Mark

NewFields River Basin Services, LLC

Dr. Mark R. Tompkins is a founding principal and senior engineering geomorphologist with NewFields River Basin Services, LLC. Dr. Tompkins holds a B.S. in civil engineering and an M.S. in environmental engineering from the University of Illinois at Urbana-Champaign, where he studied interconnections between channel morphology and fish populations in agricultural streams. He also holds a Ph.D. from the University of California, Berkeley in environmental planning, where he conducted interdisciplinary research on the role of floodplains in flood management and river corridor restoration. Dr. Tompkins is an engineer, scientist, and environmental planner who has planned, analyzed, designed, and implemented a wide variety of river corridor ecosystem restoration projects across the United States and around the world, with a focus on the salmonid rivers of Northern California's Central Valley. His research and professional practice focuses on the intersection of fluvial geomorphology, ecology, river engineering, and river management policy development. Dr. Tompkins currently serves on the Technical Advisory Committees for the San Joaquin River Restoration Program (one of the largest river restoration programs in the world) and the Cache Creek Improvement Program (one of the first formal adaptive management programs dealing with resource extraction and river ecosystem restoration). Dr. Tompkins was a Switzer Foundation Leadership Program Fellow in 2010 and 2011, a National Academy of Engineers Frontiers Program fellow in 2009, the recipient of the Young Alumni Achievement Award from the University of Illinois Civil and Environmental Engineering Department in 2008, and currently serves on the board of the Water Resources Center Archives, an extensive collection of materials on California's water resources. Dr. Tompkins is also a regular faculty lecturer at the University of California, Berkeley where he teaches the Restoration of Rivers and Streams, Hydrology for Planners, and the California Water Colloquia. He also teaches annual short courses for professionals on the geomorphic and ecological fundamentals for river and stream restoration. Dr. Tompkins' research and related professional work has been funded in recent years by grants from the Switzer Foundation and the Bechtel Foundation. His work on river ecosystems also includes extensive writing and photography for popular magazines on river conservation and recreational angling. Finally, Dr. Tompkins has recently emerged as a leading thinker on the application of advanced technology to the adaptive management of natural resources, and is currently working with a Silicon Valley knowledge management firm on a Bechtel Foundation funded proof of concept study showing the benefits of applying advanced technological tools to the analysis and management of California's Sacramento – San Joaquin Delta ecosystem.

Trettin, Carl

USDA Forest Service

Dr. Carl C. Trettin is the Team Leader and Supervisory Research Soil Scientists for the Center for Wetlands Research within the U.S. Forest Service Southern Research Station's Watershed Sciences Unit. The Center has an interdisciplinary team that focuses on the ecology, management and restoration of wetland-dominated landscapes. Their capabilities focus on issues involving sustainability, carbon and nutrient cycling, ecohydrology, bioenergy production, functional restoration, wildlife, and climate change. Dr. Trettin's research focuses on carbon and nutrient cycling in wetlands, particularly the effects of land use practices and restoration effectiveness. His work integrates hydrologic processes and vegetation community dynamics to address soil biogeochemical responses to land management. His current work is addressing hydrologic controls on greenhouse gas emissions in bottomland hardwoods, carbon dynamics in tropical forested wetlands, and influences of tidal freshwater streams on forested wetland functions. He has authored over 130 articles including two books, been an invited reviewer for Finnish Forestry Research Institute's peatland carbon cycling research program, advised the Chinese Academy of Forestry in developing a wetland restoration program, was a European Union Mundus Scholar, advised the development of a mountain peatland restoration program in Lesotho on behalf of Millennium Challenge Corporation, and is currently a principal scientist for the Forest Service Tropical Wetland Program who is focusing on carbon pools in African mangroves. He currently serves as a member of the U.S. Department of Agriculture's Carbon Accounting Guidelines working group, and is an adjunct faculty at North Carolina State University, Michigan Technological University, and the College of Charleston.

Tufford, Daniel

University of South Carolina

Dr. Daniel Tufford is a Research Associate Professor in the Department of Biological Sciences at the University of South Carolina. He holds a Ph.D. (1996) in Environmental Health Sciences from the University of South Carolina (USC). He also has appointments as Research Associate in the Belle W. Baruch Institute for Marine and Coastal Science (USC), as Senior Associate Faculty in the Environment & Sustainability Program (USC), and as adjunct faculty in the Masters of Science in Environmental Studies Program at the College of Charleston (Charleston, South Carolina). Dr. Tufford's main research interests are in the areas of water resources, wetland ecology, and watershed hydrology. He has been especially active in the area of climate impacts, computer modeling, and GIS. Modeling has always been a primary interest, however, Dr. Tufford also has an active field program and does a great deal of analytical chemistry work related to water quality. Among his many service activities, and in addition to serving as an advisor to many graduate and undergraduate students, Dr. Tufford is a member of the Executive Committee and task force of the Gills Creek Watershed Association, an advisory board member for Audubon South Carolina, the nominator for the Beidler Forest for inclusion as a Ramsar Wetland, on the board of the Congaree Task Force for Economic and Environmental Responsibility, and past president of the Columbia Audubon Society. He has organized an Earth Day panel on isolated wetlands, written op-eds for The State newspaper, and participated in numerous conferences as a speaker. Dr. Tufford also has taught Environmental Biology on a number of occasions. His recent research is funded primarily by the National Oceanic and Atmospheric Administration, the U.S. Environmental Protection Agency, and the National Park Service.

Urban, Noel

Michigan Technological University

Dr. Noel R. Urban is a Professor of Environmental Engineering at Michigan Technological University (MTU) and Director of the Michigan Tech Center for Water and Society. He has a B.S. in Environmental Engineering from Syracuse University (1979), a B.A. in Russian Language and Culture from Syracuse University (1980), and M.S. and Ph.D. (1987) degrees in Civil Engineering from the University of Minnesota. Dr. Urban worked for four years as a post-doctoral fellow at EAWAG, the Swiss Federal Institute for Environmental Science and Technology. He then spent a year in Bayreuth, Germany as a Humboldt Fellow before taking a position at Michigan Technological University. Dr. Urban is a biogeochemist who works primarily in lake and wetland environments. He teaches environmental chemistry and surface water quality courses in the Environmental Engineering program at Michigan Technological University. Dr. Urban has published extensively on the biogeochemistry of wetlands, small lakes and the Great Lakes. He currently has research projects dealing with remediation of lakes and streams impacted by mining wastes, watershed dynamics throughout the Great Lakes basin, and impacts of climate change on the Great Lakes. Funding for recent work has come from the National Science Foundation, Michigan Department of Environmental Quality, and Michigan Sea Grant. Dr. Urban has not served on advisory committees within the past three years.

Uzarski, Donald

Central Michigan University

Dr. Donald G. Uzarski is currently the Director of the Institute for Great Lakes Research, Director of the Central Michigan University Biological Station, and Associate Professor of Biology at Central Michigan University. He completed a dual Ph.D. in Limnology/Stream Ecology and Ecology, Evolutionary, and Behavioral Biology at Michigan State University in 1999. Since that time, he has secured over $13 million in external funding as lead principal investigator and published more than 40 peer-reviewed scientific manuscripts. He is currently leading the single largest Great Lakes Restoration Initiative award that spans over 10,000 miles of Great Lakes shoreline and includes the study of chemical, physical, and biological aspects of over 1000 Great Lakes coastal wetlands. The project includes scientists from nine universities and three government agencies. This project, and the vast majority of Dr. Uzarski's research, addresses how aquatic ecosystems respond to human impacts. Dr. Uzarski's research has led to numerous advisory roles and tasks. He was approached by the U.S. Federal and Michigan State Governments about conducting research on the controversial activity politically referred to as 'beach grooming' permissible by legislation passed in Michigan. These studies led to invited expert testimony before the Michigan State Senate and House of Representatives over several years. The Michigan State Governor appointed him to the Michigan Wetland Advisory Council to work with U.S. EPA and Michigan Department of Environmental Quality (MDEQ) to ensure that Michigan would maintain delegated authority over its wetland permitting program. He was recently approached by the congressional Governmental Accountability Office (GAO) to determine the effectiveness of the restoration of the Laurentian Great Lakes. He was also approached by both Wayne State University and the University of Michigan to serve on the Advisory Boards of their Wayne State University Great Lakes Field Facility and the University of Michigan Water Institute respectively. He serves as a consultant to the International Joint Commission as an invited expert on Environmental Indicators and as an Environmental Technical Working Group (ETWG) Upper Great Lakes Study contracted expert to determine the impacts of Great Lakes water level control on ecosystem structure and function. For the majority of the last 10 years he has served as the Chair of the Great Lakes Coastal Wetlands Consortium Science Committee. The Consortium was made up of 150 members representing 50 academic, state, federal, and non-governmental organizations. For more than a decade he has worked with the Michigan Department of Environmental Quality on Bioassessment techniques that he developed. Overall, he maintains a close connection with researchers from government and academic institutions addressing front-line issues. Dr. Uzarski has received research funding in the last two years from the U.S. EPA Great Lakes National Program Office, National Oceanic and Atmospheric Administration, and Michigan Department of Environmental Quality.

Valett, Maurice

University of Montana

Dr. Maurice Valett is a Professor of Systems Ecology at the University of Montana. He holds a B.S. in Animal Biology from Western Washington University (1982), an M.S. in Zoology from the University of Montana (1985), and Ph.D. in Zoology from Arizona State University (1991). Dr. Valett has been a member of the University of Montana faculty since 2009. His research focuses on ecosystem ecology and biogeochemistry, nutrient retention in lotic ecosystems, groundwater-surface water exchange, floodplain river interactions, and wetlands and streams as flow-through systems. Dr. Valett was Associate and Assistant Professor of Ecology at the Virginia Polytechnic Institute and State University from 1998-2009. He was Research Assistant Professor and Visiting Assistant Professor in the Department of Biology at the University of New Mexico from 1991-1994. Dr. Valett is a member of the American Geophysical Union, the American Society of Limnology and Oceanography, the Ecological Society of America, the North American Benthological Society, and the Geological Society of America. He previously served as a member of the National Science Foundation Geobiology and Low-Temperature Geochemistry Panel and the Carbon and Water in Earth Sciences Panel. Dr. Valett is associate editor *of Limnology and Oceanography* and from 1998 – 2001 was associate editor of the *Journal of the North American Benthological Society*. Dr. Valett's research is currently funded by grants from the National Science Foundation (Elemental Cycling in Streams, Exurbation and Climate Interaction in the Southeast).

Waite, Ian

U.S. Geological Survey

Dr. Ian Waite is a senior research ecologist in the U.S. Geological Survey's (USGS) Oregon Water Science Center. He has a Ph.D. in Entomology/Aquatic Ecology from the University of Idaho, an M.S. in Fisheries from Humboldt State University, California, and a B.S. in Natural Resources from University of Michigan. He joined the USGS in 1992 and has worked for the National Water-Quality Assessment (NAWQA) Program for the past 20 years. Dr. Waite has conducted research in stream ecology for over 30 years to better understand impacts on stream biota related to a wide variety of factors (e.g., flow alteration, habitat changes, water quality and land use caused pollution). His current research focuses on the effects of land-use change (urbanization and agriculture) and hydrologic alteration on stream ecosystems and the development of ecological models to predict stream condition. Dr. Waite is an author on 30 journal articles and Survey reports, was selected as the USGS Water Resources Lecturer in 2011 and has served on a number of important regional and national committees. Dr. Waite has also been an adjunct professor at Portland State University since 1995, teaches graduate classes in his specialty, and sits on graduate committees for numerous students.

Weidhaas, Jennifer

West Virginia University

Dr. Jennifer Weidhaas is an Assistant Professor of Civil and Environmental Engineering at West Virginia University. Dr. Weidhaas earned a B.S. in Civil Engineering in 1999 from Montana State University at Bozeman and an M.S. in 2002 and Ph.D. in 2006 from the University of California at Davis in Civil and Environmental Engineering. Dr. Weidhaas is a registered professional engineer. Her work at West Virginia University since 2010 has focused on determining the fate, transport and bioremediation of emerging contaminants. Prior to taking a position at West Virginia University, Dr. Weidhaas worked for six years with North Wind Inc. as a professional environmental engineer on hazardous waste remediation projects. At North Wind, Inc. she directed a molecular biology laboratory which routinely analyzed groundwater, soil and sediment samples by various molecular biology methods for microorganisms involved in contaminant bioremediation. Additionally she has worked on numerous groundwater, soil and sediment bioremediation projects throughout the western United States. Dr. Weidhaas has been a member of the Interstate Technology Regulatory Council's Environmental Molecular Diagnostics Team since 2010. Her research is currently funded by the National Science Foundation, West Virginia Department of Highways, and the West Virginia Division of Science and Research, Higher Education policy Commission.

White, John

Louisiana State University

Dr. John White is an Associate Professor in the Department of Oceanography and Coastal Sciences in the School of the Coast and Environment at Louisiana State University (LSU). He holds a B.S. degree in Geology from Washington and Lee University, two Masters degrees, one in Geological Oceanography and one in Coastal Zone Management from the Florida Institute of Technology and a Ph.D. degree in Soil and Water Science with a specialty in Wetland Biogeochemistry from the University of Florida. Dr. White was an Assistant Professor of research at the University of Florida until accepting a tenure-track position at Louisiana State University in 2004. Dr White specializes in nutrient and contaminant biogeochemistry in wetlands and aquatic systems. His current research involves investigating the effects of large river nutrient pulse loading to lake and estuarine nutrient dynamics and ecological response, determining the accuracy of rapid assessment scoring procedures compared to biogeochemical measures in forested wetland systems, and assessing carbon sequestration value in fresh and salt marsh wetland systems. In addition, research on the effects of crude oil, nanoparticles and pharmaceutical compounds on critical wetland biogeochemical functions is ongoing. Dr. White's current research is funded by National Oceanic and Atmospheric Administration, U.S. Geological Survey, U.S. Army Corp of Engineers, British Petroleum, and the Louisiana Office of Coastal Protection and Restoration, and Louisiana Department of Natural Resources, and previously funded by the National Science Foundation, U.S. Department of Commerce, U.S. Department of Agriculture, and U.S. Department of Interior, among others. Dr. White has published more than 50 peer-reviewed journal articles and 9 peer-reviewed book chapters. He is currently an Executive Board Member of the LSU Coastal Sustainability Studio, serves as the Associate Director for the LSU Coastal Studies Institute and is an Executive Committee Member for the LSU School of the Coast and Environment's undergraduate Coastal and Environmental Sciences degree. Dr. White has served as the National Program Chair of the wetland soils division (S-10) of the Soil Science Society of America, organized and chaired eight sessions at National/International conferences and served as a proposal reviewer for the U.S. Department of Energy, U.S. Army Corp of Engineers and National Oceanic and Atmospheric Administration Sea Grant Program. In addition, he has served five years on the editorial board of the *Journal of Soil and Water Conservation* and also two terms on the editorial board for the Soil *Science Society of America Journal*. Dr. White's teaching responsibilities include undergraduate and graduate teaching in Introduction to Oceanography, Wetlands and Water Quality, and Biogeochemistry of Submerged Soils and Sediments.

Whiting, Peter

Case Western Reserve University

Dr. Peter Whiting is Associate Dean of the College of Arts and Sciences and Associate Professor of Geological Sciences at Case Western Reserve University (CWRU). He directs the Seminar Approach to General Education and Scholarship – a five course sequence taken by each undergraduate at CWRU. Dr. Whiting holds a B.A. in Geology from Carleton College in Northfield, Minnesota, and a Ph.D. in Geomorphology from University of California, Berkeley. Prior to joining the faculty at CWRU, he worked as an environmental consultant in the Northwest. Dr. Whiting's primary research interest is rivers and streams. His goal is to answer theoretical questions about process and morphology and to address practical problems of environment and land use through quantitative field study and physical or computational modeling. Dr. Whiting has developed techniques for determining the source, transport and fate of fine sediment and adsorbed pollutants using fallout radionuclides as tracers. He has undertaken an extensive field effort to understand the river flows that move the bulk of the sediment in streams. One aim of this work is to develop a protocol for estimating the streamflow necessary to prevent sediment from filling channels in support of a major water rights case in Idaho. In addition, Dr. Whiting has investigated the ability of the floodplain to store and release water as influenced by floodplain material (gravel, sand or silt) and width. Other topics he has examined are: stream classification, river meander development, estimation of channel attributes using Geographic Information Systems, and estimation of background sediment loading in Total Maximum Daily Load determinations. Whiting has been funded in past by the National Science Foundation, U.S. Department of Agriculture, National Oceanic and Atmospheric Administration, U.S. Department of Justice, U.S. Forest Service, and other organizations. He has no current research grants. In 2000, he was selected as an Aldo Leopold Leadership Fellow.

Wilcox, Bradford

Texas A&M University

Dr. Bradford Wilcox is a professor in the Department of Ecosystem Science and Management at Texas A&M University. He holds a Ph.D. in Rangeland Hydrology from New Mexico State University and M.S. in Rangeland Ecology and B.S. in Rangeland Management from Texas Tech University. His research and teaching focus on ecohydrology and watershed management with an emphasis on understanding how land cover change affects the water cycle. He has worked in a variety of landscapes including wetlands on the Texas Gulf Coast, shrublands across the southwest, and forests in the western U.S. With respect to wetlands he was the lead researcher on a study in the Texas Gulf Coast that demonstrated strong hydrological connections in "isolated wetlands". He recently received a Fulbright grant to work on the ecohydrology of high elevation grasslands and wetlands in Ecuador. Dr. Wilcox's sources of funding during the last two years include the U.S. Department of Agriculture – Agriculture and Food Research Initiative (AFRI) program, Edwards Aquifer Authority, and the Brazilian Research Agency--Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq).

Wipfli, Mark

University of Alaska Fairbanks

Dr. Mark S. Wipfli is a Professor of Freshwater Ecology at the University of Alaska Fairbanks (UAF), where he teaches graduate courses in freshwater food webs, aquatic entomology, climate change, and coastal ecosystem ecology. Dr. Wipfli received his B.Sc. from the University of Wisconsin, Madison in Natural Science, an M.S. in Entomology also from the University of Wisconsin, Madison, and his Ph.D. from Michigan State University in Aquatic Ecology and Environmental Toxicology. He completed two years of post-doctoral work with the U.S. Forest Service in Juneau, Alaska, documenting how headwater streams are connected to downstream waters through prey and organic matter transport via headwater streams, and the influence of timber management on riparian-stream linkages. Dr. Wipfli worked as a Research Scientist for the U.S. Department of Agriculture (USDA) Forest Service in Juneau, Alaska for a decade, before taking a faculty position at UAF in 2003. He currently supervises a large team of graduate students and postdoctoral researchers that are studying a wide range of aquatic and riparian ecology topics, including investigating sources of juvenile Chinook mortality in fresh water, understanding the effects of invasive species on stream food webs, and documenting climate change and land use effects on stream, wetland, and lake food web processes. His past and current work also examines how marine and freshwater ecosystems are linked through the nutrients and carbon that adult salmon provide to riverine communities when they return to fresh water to spawn. Most of his research program centers on the chemical, physical, and biological processes that influence freshwater productivity, particularly the effects of natural processes and anthropogenic disturbances on upper level consumers, especially fishes. He has served on review panels for U.S. Fish and Wildlife Service (USFWS), U.S. EPA, and USDA, and has served as a peer-reviewer for *Ecology*, *Ecosystems*, *Freshwater Biology*, *Ecological Applications*, *Canadian Journal of Fisheries and Aquatic Sciences*, *Journal of Freshwater Science*, and *Hydrobiologia*. Dr. Wipfli is currently President of the Alaska Chapter of the American Fisheries Society. He has published over 60 peer-reviewed journal and technical articles, and presented over 200 papers at professional meetings, workshops, and seminars. Funding within the last two years has come from National Science Foundation, USFWS, U.S. Bureau of Land Management, U.S. Geological Survey, and Alaska Energy Authority.

Wohl, Ellen

Colorado State University

Dr. Ellen Wohl is a Professor of Geology in the Department of Geosciences at Colorado State University. She holds a B.S. in Geology from Arizona State University and a Ph.D. in Geosciences from the University of Arizona. Dr. Wohl studies physical process and form in rivers, particularly headwater rivers, as these interact with ecological and human communities. She currently serves on the editorial board or as an associate editor for several physical geography, geosciences, hydrological sciences, and environmental sciences journals. She has served on review panels for the National Science Foundation, the Upper Colorado River Endangered Fish Recovery Program, and the San Juan River Recovery Program. She currently serves on the Grand Canyon Science Advisory Board, the Earth and Planetary Surface Processes executive committee of the American Geophysical Union, and The Nature Conservancy's Colorado Scientific Advisory Network. She received the G.K. Gilbert Award from the Association of American Geographers in 2000 and 2003, and the Kirk Bryan Award from the Geological Society of America in 2009. She is a Fellow of the Geological Society of America. Dr. Wohl's research has been funded in recent years by the National Science Foundation, the U.S. Department of Agriculture Forest Service, the National Geographic Society, the U.S. Army Research Office, and the U.S. Army Strategic Environmental Research and Development Program.

Wollheim, Wilfred

University of New Hampshire

Dr. Wilfred M. Wollheim is an Assistant Professor of Aquatic Ecosystem Ecology in the Department of Natural Resources and the Environment at the University of New Hampshire (UNH), and is co-director of the Water Systems Analysis Group in the Earth Systems Research Center at UNH. Dr. Wollheim holds a B.S. in Natural Resources from Cornell University, an M.S. in Wetland Ecology from the University of Wyoming and a Ph.D. in Earth Science from UNH. He has been on the faculty at UNH since 2010. His research focuses on understanding aquatic ecosystem responses to land use and climate change, in particular the capacity of entire river systems to attenuate human impacts before reaching critical downstream water bodies. He uses field measurements, field experiments, and computer models to understand how water flow, water temperature, dissolved nitrogen, and dissolved carbon vary throughout river networks. Dr. Wollheim's research areas include watersheds of suburban Boston in northeastern MA, seacoast of New Hampshire, the north slope of Alaska, as well as modeling domains extending across scale from coastal New England watersheds, the Gulf of Maine, the continental United States, to the global network of aquatic systems. Dr. Wollheim also teaches several courses including Aquatic Ecosystems, and Environmental Modeling. He is active in the National Science Foundation Long Term Ecological Research Network, including the Plum Island, Massachusetts, and Toolik Lake, Alaska LTER sites, and serves on the Aquatic Advisory Committee of the National Ecological Observatory Network (NEON). Dr. Wollheim's current research is funded by competitively awarded grants from the National Science Foundation, National Oceanic and Atmospheric Administration, National Aeronautics and Space Administration, U.S. Environmental Protection Agency, and internal funding from the University of New Hampshire.

Wrubleski, Dale

Ducks Unlimited Canada

Dr. Dale Wrubleski is a research scientist with the Institute for Wetland and Waterfowl Research, the research arm of Ducks Unlimited Canada (DUC). He has a B.Sc. in biology from the University of Regina, an M.Sc. in entomology from the University of Manitoba, and a Ph.D. in entomology from the University of Alberta. He has also had post-doctoral positions with DUC in Winnipeg, Manitoba and the National Research Council with the U.S. EPA Laboratory in Duluth, Minnesota. Dr. Wrubleski's primary research interests are aquatic invertebrates, fisheries and wetland management. He has worked on a variety of multi-faceted wetland research projects looking at the effects of water level management in large coastal and boreal floodplain wetlands and agricultural activities on prairie potholes. He is currently the science lead for DUC's restoration program for Delta Marsh in Manitoba. This 10-year project is restoring one of the largest freshwater coastal wetlands in North America. The project has just completed the construction of a series of structures to exclude an invasive fish species (Common Carp) from the marsh, and is initialing research projects to better understand Delta's hydrology and nutrient dynamics. Dr. Wrubleski has served on several internal DUC research committees. Recent sources of research funds include DUC, Manitoba Conservation and Water Stewardship and Manitoba Hydro.

Yaich, Scott

Ducks Unlimited, Inc.

Dr. Scott Yaich has served as the Director of Conservation Operations for Ducks Unlimited (DU, National Headquarters) since June 2007. In 2010, he was appointed by Secretary of the Interior Salazar to serve as one of nine members of the North American Wetlands Conservation Council. Dr. Yaich is also the charter Vice-Chair for the Wetlands Working Group of The Wildlife Society, the professional society for wildlife scientists, and has been a member of the Society of Wetland Scientists since its inception. He provides staff leadership to a new partnership between DU and the USA Rice Federation focused on addressing shared challenges facing conservation of water resources, waterfowl, and working rice lands. He earned his B.A. at the University of Delaware, and M.A. and Ph.D. (1981) at Southern Illinois University in the discipline of wildlife ecology. Dr. Yaich subsequently conducted post-doctoral work on habitat restoration and wetland creation on reclaimed surface mined lands in the Midwest coal fields, with groundwater hydrology and chemistry being a key component of pioneering successful approaches to addressing significant reclamation challenges through wetland development. Early in his career he served as Wetlands Program leader for the Arkansas Game and Fish Commission (AGFC), with one aspect of his duties being leadership of a program of working with the agricultural sector and other landowners to benefit wetlands. He came to DU as Director of Conservation Planning (i.e., science) in 2001, after serving with the U.S. Fish and Wildlife Service in Arkansas (1992-1996), and as the AGFC's Wildlife Division Chief (1996-97) and Assistant Director of its three conservation divisions (1997-2001). Most recently, he has served as DU's lead scientist in synthesizing scientific information and developing science-based communications regarding the linkages between wetlands, particularly geographically isolated wetlands, and downstream/downslope waters (funded primarily by DU's unrestricted grassroots member revenue). His expertise focuses on wetland ecology, particularly with respect to wetland connectivity and wetland ecosystem function, population dynamics and dispersal of freshwater organisms, and the biologic connectivity of freshwater systems.

ZumBerge, Jeremy

State of Wyoming

Mr. Jeremy ZumBerge is a supervisor within the Watershed Protection Program of the Wyoming Department of Environmental Quality (WDEQ), a position he has held for 11 years. He received a B.S. in Environmental Studies from Bemidji State University (Minnesota) in 1997 and an M.S. in Water Resource Science from the University of Minnesota in 1999. Both degrees emphasized aquatic ecology/ecosystem science. He worked for the U.S. Geological Survey as a hydrologic technician and aquatic biologist for three years during and following graduate school before moving to Wyoming in 2000 to work as a Natural Resources Analyst within the Watershed Protection Program of WDEQ. In his current capacity, Mr. Zumberge oversees the monitoring of water quality conditions of Wyoming surface waters for the purpose of assessing attainment of water quality standards and support of designated water uses. He has significant experience with assessing the chemical, biological, and hydrogeomorphic condition of Wyoming waters, including intermittent and perennial streams, wetlands, lakes, and larger rivers. He contributed to development of a statistical model for predicting aquatic invertebrate community composition using landscape and other abiotic factors for the purpose of assessing the biotic integrity of Wyoming streams. He also oversees the Wyoming Clean Water Act (CWA) §401 certification program, a role that includes assessing the ecological impacts of CWA §404-authorized activities on streams and wetlands and related issues of federal and state jurisdiction over Wyoming waters, participation in the Wyoming Mitigation Banking Interagency Review Team, and development of a standardized approach for calculating appropriate mitigation for adverse ecological effects to streams as authorized by Department of the Army permits issued in the state. Mr. ZumBerge's program receives support from federal CWA §106 and §319 grants.